

Florida

How To Make Fishing Work
Survival Built Bowfins

*Fishing • Hunting
• Conservation •
Outdoor Recreation*

WILDLIFE

APRIL 1968

The Florida Magazine for all Sportsmen

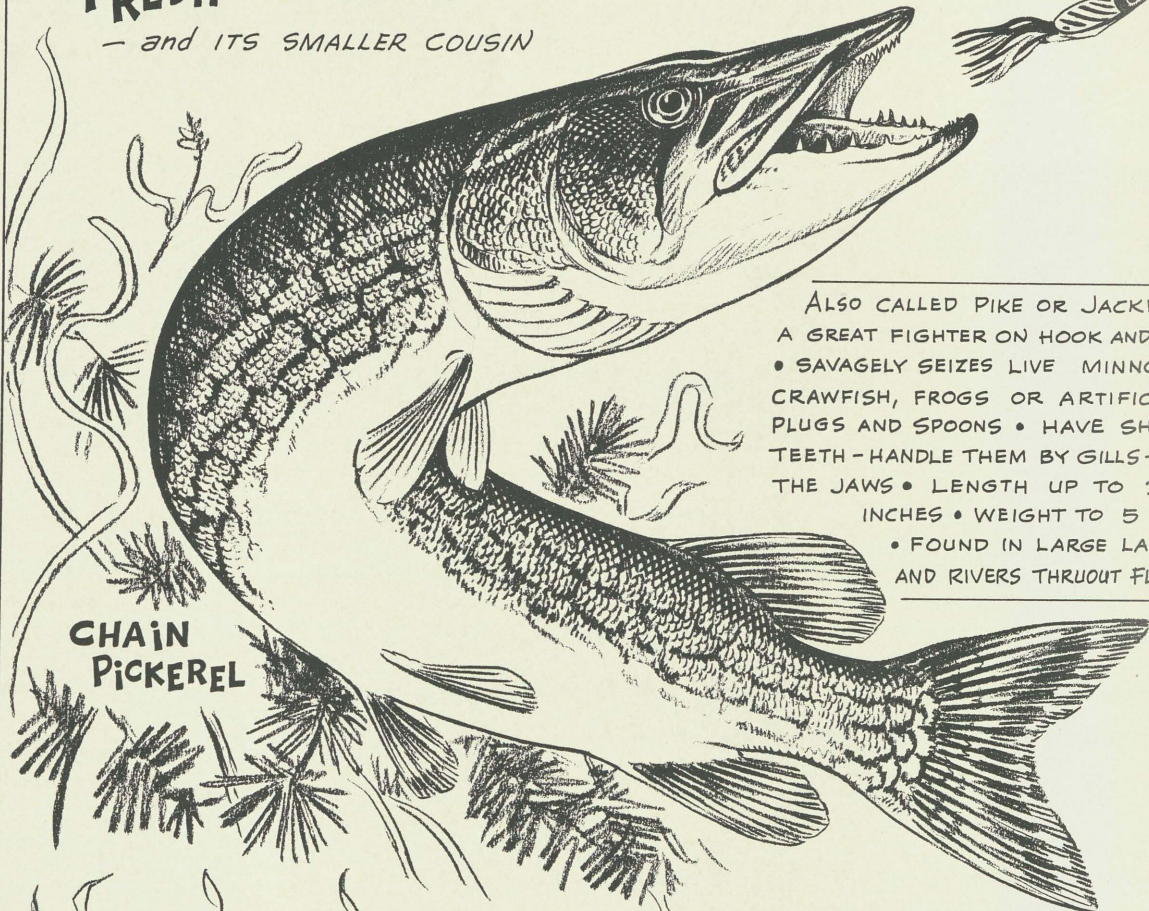
25 CENTS



Florida Wildlife Scrapbook

FRESH WATER TIGER

— and ITS SMALLER COUSIN



**CHAIN
PICKEREL**

REDFIN PICKEREL

ALSO CALLED PIKE OR JACKFISH •
A GREAT FIGHTER ON HOOK AND LINE
• SAVAGELY SEIZES LIVE MINNOWS,
CRAWFISH, FROGS OR ARTIFICIAL
PLUGS AND SPOONS • HAVE SHARP
TEETH - HANDLE THEM BY GILLS - NOT
THE JAWS • LENGTH UP TO 24
INCHES • WEIGHT TO 5 LBS.
• FOUND IN LARGE LAKES
AND RIVERS THROUGHT FLORIDA

NOT OF MUCH INTEREST TO SPORTSMEN BECAUSE
OF SMALL SIZE • MAXIMUM SIZE ABOUT 13
INCHES - AVERAGE 7 TO 10 • EATS MAINLY
AQUATIC INSECT LARVAE & SMALL MINNOWS
• INHABITS SMALL STREAMS & SWAMP WATERS
FROM THE PANHANDLE TO THE LAKE OKEECHOBEE AREA

Florida WILDLIFE

APRIL 1968

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State of Florida



Publications Department

BILL HANSEN *Editor*

WALLACE HUGHES *Art Director*

GENE SMITH *Editorial Assistant*

C. L. SATTERFIELD *Circulation*

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The Cover

Florida's springtime fishing is in full swing—and the largemouth bass angler can almost continuously “beam” over a day's success afloat. This catch was made on the Dead Lakes, along the Chipola River, in northwest Florida.

Photo By Johnny Johnson, State News Bureau

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Future Timber Harvests

By ROBERT M. TRUE

American Forest Products Industries, Inc.

BETWEEN NOW AND the end of the century the forest based industries will face some of their most important problems. They must not only meet the usual demands for pulpwood, lumber, veneer and a long list of other materials for an expanding economy, but the land base upon which these requirements can be grown is shrinking.

Coupled with this is an attitude gaining considerable public acceptance that it is evil to cut a tree. This propaganda is reaching the layman constantly, and all of it damns the industry and government alike for cutting trees and casts professional foresters in the light of evildoers.

Currently the industry and the profession of forestry are laboring under a growing public attitude that timber cutting is inimical to "the public interest" and that once a forest is harvested it is lost forever. This attitude is the result of a campaign being pursued by the "false conservationists" and the like.

This strong and growing attitude is of rather recent origin and has entered into nearly all phases of the use and management of forest land. Recreation and natural beauty have captured the public's attention and found millions of Americans who place these activities at the top in forest land use.

As our population grows, more and more of our citizens are clustering in and near our cities and fewer and fewer of them have any understanding of timber growing, harvesting, manufacturing and distribution.

And what about this vast number of Americans? What are we told about their future? For one thing we can be sure they will work fewer hours and most likely a significantly shorter work week. And we are told that their disposable income will increase.

These facts added to today's expanding interest in the out-of-doors quite likely means that the vast majority of them will think first, and perhaps exclusively, of wilderness, outdoor recreation or natural beauty as a package—rather than where our timber will be grown or under what circumstances. This presents both a challenge and an opportunity for the nation's forest industries.

Nearly all Americans are aware that the American Tree Farm System, the nation's outstanding program of forest management on privately owned woodlands, is sponsored by the forest industries and covers more than 71 million acres of privately owned, tax-paying forest land. This impressive record has been established in just 27 years. It may surprise many to learn that in that same period approximately half of our population has been born.

These millions of Americans and millions yet unborn must be taught that our timberlands are capable of many uses; that they are truly areas of multiple use and that single purpose land use is, in



Despite what many people believe, the careful preparation of professional forestry services not only provide the country's "complex timber needs," but ideal lands for those interested in outdoor recreation with a natural beauty style wilderness.

many cases, a luxury our expanding economy cannot sustain.

The nearly 2,600,000 acres of Tree Farms in the State of Maine give on-the-ground proof that Tree Farm management offers the opportunity for continued timber harvests and the additional benefits of hunting, fishing, camping, hiking and any number of other recreational activities. Of considerable importance is the fact that Tree Farm lands remain on the tax rolls and provide revenue.

Today three out of five Americans live in metropolitan areas. The shift in population is continuing, and it is expected that by the end of the next quarter century four out of five people in the nation will be urban and suburban dwellers. They will need open space for play and relaxation and will need and demand clean air and water. These people must be told the vibrant story of multiple use and Tree Farm management and of their dependence on the products of forest industry and what the forest industry is doing to provide a better environment in which to live.

In the next 25 years, the capacity of the forest products industry to produce the wood products to meet the people's needs will expand greatly. To keep its mills supplied with the timber the industry will require means the nation's tree-growing capacity must expand also. The Tree Farm program will be intensified and will play a major role in supplying the industry's raw material. At the same time Tree Farm management in each of our 48 contiguous states is providing the answers to many of our immediate and future land use problems.

The competition for the use of forest lands will intensify as it continues. This competition, often in the form of demands, must be judged carefully and resolved with all the facts available and a proper and intelligent regard for the nation's total needs today and in the future. ●

State Parks

BOATING

There are many Florida parks perfect for camping, swimming, boating and fishing—plus others ideal for history, relic and nature seekers

By ELGIN WHITE



APRIL IN FLORIDA makes April in Paris look like a re-run of an old movie. The French may have the Left Bank and all the pollution that goes with it, mon cherie, but Uncle Sam's Sunshine State has all the ingredients to make the month of April one of the most fantastic times of the year for boating . . . or anything else, for that matter.

And since old vernal has gone ahead and equinoxed, our Florida boatman and his family are looking forward to a spring and summer in the great Florida outdoors.

These days, getting into the outdoors with a boat means much more than whipping along our multitude of aqua-highways or poking through small rivers and creeks stalking a wily black bass.

Circa 1968 has brought with it, we are told, a complete revival of the old family camping bit that almost came to a head right after World War II but then sallied off into the limbo for some reason.

So, let's devote space to where a boatman and his brood can cut it on a camping caper. To try and discuss the complete camping situation for a boatman in Florida would be like trying to transcribe the Bible on the head of a pin.

Let us suffice to say it can't be done. But we can offer some prime areas for campers and boaters who are finally realizing the complete joy of combining these two aspects of outdoor life into one whale of an avocation.

Our discussion this time around will center in the main on facilities available to campers and boatmen in State parks. There are umpteen fine camping areas throughout the entire peninsula that are run by private enterprise, too, but will discuss these facilities in a later article.

There are 39 Florida State Parks strategically located in every section of the state, some of them ideal for boatmen and campers, some of them much better just for camping alone. They include both fresh and salt water locales and most of them offer every convenience for comfortable camping life.

Out of the 39 parks, 13 of them have rental boats, and 20 of them have ramps, piers, docks or marinas.

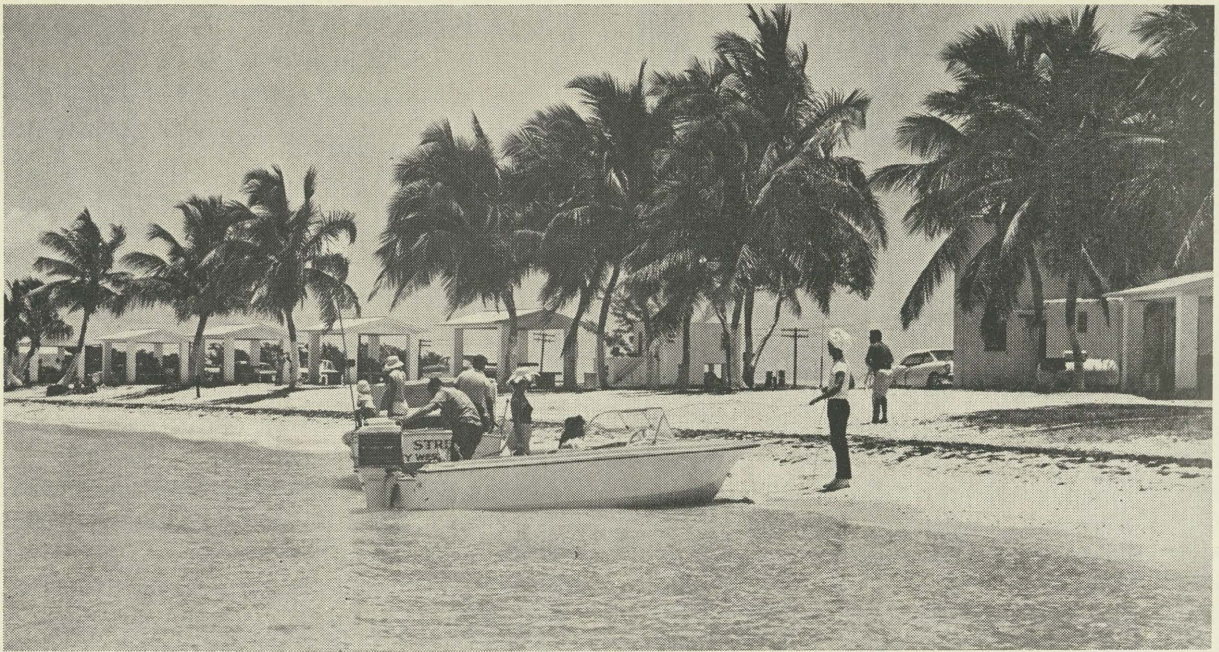
Gold Head Branch State Park, near Jacksonville, is one of Florida's most popular recreation centers. Swimming, fishing and boating facilities—plus various cabin and trailer parking accommodations—are available at moderate charges.

Now, to pick a favorite. This is nigh on to impossible. Looking for salt water fun? My favorite, I suppose, is the fabulous Bahia Honda park south of Marathon in the Florida Keys. This area is absolutely ideal for boating-campers. A magnificent beach area surrounded by the fabulous blue-green waters of the Keys also features an excellent campsite with every convenience except built-in baby sitters. And ten to one you could find that nearby.

Another salt water favorite would be the John Pennekamp Coral Reef State Park at Key Largo. This is the only underwater park in the world, unless the Russians have one stashed away somewhere in the Urals. But the Pennekamp Park, like Bahia Honda, has all the trimmings plus a nature trail area and, of course, the tour of the beautiful coral reef via glass-bottomed boats. Many true boatmen who are also diving addicts can find a real paradise here. There is probably no place anywhere in the world that has the sea-bottom scenery that can be found at Pennekamp Park. On any given day you can run out to the reef from the Park base at Key Largo and find many boats with divers aboard, exploring the fantasia that exists on the ocean floor.

(Continued on next page)





The beautiful Bahia Honda State Park, in the Florida Keys, has proven a boatman's and picnicker's paradise.

(Continued from preceding page)

Florida has two state parks located on the coast at opposite sides of the state that really attract history buffs, too. Fort Clinch at Fernandina Beach and Fort Pickens at Pensacola give boating-campers a good insight into some of Florida's more romantic historical aspects. Both forts are the old brick-type construction and are unusually similar in construction. Fort Clinch saw service under eight flags, and Fort Pickens was the site of an "eyeball to eyeball" staring contest between the true-blue defenders of the South and those damn-Yankees across the bay.

Anastasia State Park, just south of St. Augustine, has a few historical wrinkles. This is the country of Florida's birth, and the sands of the beaches along Anastasia island were darkened with the crimson blotches of French and Spanish blood as Old World powers fought for the rights to Florida's lush countryside.

With this April weather bringing out that special urge for water skiing and swimming, along with camping and boating, turn your attention to some of our state's finer fresh water campsites.

A special favorite of mine is Goldhead Branch State Park near Keystone Heights.

I remember when I was a kid we used to drive from Jacksonville down to Goldhead Branch for Sunday picnic outings. This is beautiful, crystal clear water country, and the swimming and picnicking is great. There wasn't much to the Park back in those days (it was back in the 30's, the days when Charley Waterman was still drawing a pension for the Spanish-American War) as there was only the beach and a few picnic tables and barbecue pits.

But today Goldhead Branch is truly something. Fine boat ramps, excellent camp sites, tables, grills, electrical outlets, and all the trimmings can be

found in this north Florida recreational area that is second to none.

The true boating buff, though, will find more pleasure for his own particular pursuit of outdoor happiness in areas like the Suwannee River State Park near Ellaville.

This park is located on a high bluff (especially so if Dame Suwannee is a leetle mite low) overlooking the famous stream, and the solitude of the place is matched only by the lush greenery of the surrounding country. Good campsites are available and one of the state's finest launching ramps is located here. In fact, the ramp at Ellaville is a prime starting spot for a never-to-be-forgotten cruise down the Suwannee River.

I mention this cruise, especially, because the run downriver will take you to another of Florida's really top fresh water parks, beautiful Manatee Springs.

Manatee is one of the larger of many crystal springs that feed the Suwannee River. Nestled about a mile from the river in high bluff country, Manatee Springs is idyllic. The deep-cut spring has some of the finest swimming waters anywhere in the world . . . but you gotta be a polar bear if you try it in April. Man, it is cold! It is cold water even on the Fourth of July, but in April it is like skin-diving in Siberia. Well, it is to me, anyhow. Some hardy youngsters can take Manatee's cold spring water even in December, but not old Dad.

The park has a splendid camping area, and a long, 1500-foot dock runs all the way from the headwaters of the spring at the launching ramp out to the river. The run up this spring flow is magnificent, with

deep, clear water showing you depths up to 40-50 feet. And it is a sight to see from a boat when you run smack into the tannic waters of the Suwannee from the spring. Seems as if someone simply drew a curtain of deep black over the clear waters. What a hiding spot for a bass on the lam!

These two beautiful parks on the Suwannee are big reasons so many boatmen and their families are now turning to boat-camping-fishing type vacations. With some of the new, compact camping gear that is becoming the rage, there is not too much of a problem in hauling pop tents and all accessories in a good-sized family cruiser for week-end outings that are out of this world.

Look at the statistics. There are now more than 40-million boatmen in this nation of ours, and camping as a family recreational sport has surpassed all others in the past two years. It still adds up where two and two make four, except in France, where the new DeGaulle system is used.

Two of Florida's State parks, Manatee and St. Andrews at Panama City Beach, have boat rentals only during the months of June-July-August. Ten others have boat rentals all year round.

There are many other parks throughout Florida that are as plush as many of these listed. One that comes to mind at the start is Hugh Taylor Birch at Fort Lauderdale. Amazingly enough, this fabulous park is almost in the heart of Fort Lauderdale's beach run. Birch Park has 180 acres right on the blue Atlantic and features quiet lagoons and inland waterways, ideal for small boat enthusiasts. This park is especially suitable for canoeists, and I find there are more of them around today than there were when Hiawatha was mooning around with Minnehaha.

There are some parks, of course, that are more suited for just camping or swimming, and not boating. And, there are parks that are more for history buffs and relic seekers.

There is a booklet, and it is indeed a beautiful one, put out by the Florida Board of Parks telling the complete story, with pictures, of Florida's many parks and historic memorials. I suggest you take pen in hand and write the Park Board in Tallahassee for one of these fine booklets. It will certainly be a big boost in your planning for your spring boating and camping tour.

TAKING ANOTHER LOOK at spring, we received word of a new idea in the world of boating . . . a world that is always coming up with something new.

A pair of ingenious Florida aquanauts at North Casey Key, George Hard and John Holmes, got hold of a venerable and much admired small boat, the Nova Scotia dory, and attached hydrofoils to either side of the experimental craft. They then attached a mere 20 hp. motor through the mid-hull and can push the old dory at a cool 36 mph.

Hard says the dory is an extremely sea-worthy craft, but it is not used by recreational fishermen because it is too slow. He hopes his new rig will combine the best features of the dory and hydrofoils and give recreational fishermen a new look on water.

The picturesque dory has been around long before Captain Ahab got his mad on with Moby Dick, and the deep hull but narrow beamed craft can handle all sorts of rough seas. If Hard and Holmes' idea with the hydrofoils really bears fruit, look for the new breed of fishing nuts to go after the old dory with a fervor. ●



A long-time worthy craft, the dory may possibly become a pleasure boat in the near future. The experimental efforts by George Hard and John Holmes, down in North Casey Key, could soon provide recreational anglers a brand new look.

The Shellcracker

By GENE SMITH

ABOUT THIS TIME every year people in Florida desert homes, offices, and even sick friends to join community sit-ins over shellcracker beds. Invariably, a small armada of fishing boats clumped together with cane poles bristling all over the place means the Redear Sunfish, *Lepomis microlophus*—shellcracker to most Southerners—are spawning again. This is the highlight of many an angler's fishing year.

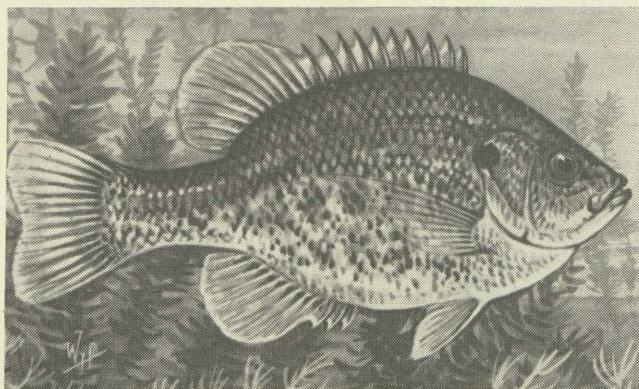
The redear is a member of the family *Centrarchidae*, the Sunfishes, which includes largemouth bass and all the panfish commonly caught in Florida. It ranges from parts of Texas to the Atlantic coasts of Georgia and Florida and through the Mississippi Valley to southern Illinois and Indiana. It is a favorite throughout the Sunshine State, occurring in the larger, clearer lakes and in rivers and streams.

The common name of record (redear) comes from the narrow red-to-orange border on the rear of the ear flap, or opercle, which is a handy identifying characteristic. The fish's body is silvery-olive above, often with a bluish cast in sunlight. The sides are flecked with brown, the underparts are silvery, and the breast yellowish.

Shellcrackers got their secondary name for a very good reason, though the basis for it is not as obvious as the red ear. Inside their jaws they have a set of bony grinding structures between which they crush small molluscs—mostly snails—for food. It has been said that one can actually hear shellcrackers grinding shells on a still day—but that might have been prior to the jet and outboard engine era.

The shellcracker grows to 10 inches or more in length. Weights of over four pounds have been recorded but these occurrences are extremely rare. The average Florida-caught shellcracker will weigh about half a pound, which is a lot of fish if the daily bag limit of 50 is boated! A two-pound 'cracker is a big one in anybody's creel and they are caught quite regularly in many central Florida lakes. (A two-pounder or larger makes the angler eligible for FLORIDA WILDLIFE's Fishing Citation. See inside back cover.)

Spot on gill flap has red or orange border—hence "redear."



When bedding, the shellcracker can mean family fishing fun.

Among the sunfishes, shellcrackers generally begin fanning activities first. In the Everglades they may begin bedding in February and continue, with short breaks, for the next six or seven months. In central Florida they start bedding in March or early April, while in north Florida, where winter drags its feet, it usually isn't warm enough to trigger the spawning urge until April. Shellcrackers spawn when the water temperature reaches 68-70 degrees Fahrenheit and continues to rise. A cold snap will interrupt proceedings.

Since they prefer clear lakes, the shellcrackers' beds are often seen stretching out, rim-to-rim, over wide areas of sandy bottom. This is a dream-come-true for the dedicated bream fisherman. And not only can one see the bedding fish. If the wind is just right he can "sniff" the pungent-but-pleasant odor being wafted from the bedding area.

The male fish arrive early and do the bed-fanning, the nest-guarding and the egg-guarding after spawning has occurred. The fry hatch after five or six days, after which they go their way.

Bedding may take place in water several feet deep or only a few inches deep. And bedding "communities" may be the same from year to year if nothing drastically alters the area. Sometimes, however, one year's hot spot will be deserted the next and the fisherman will have to search for the new colony. (Some do so from aircraft.)

Studies in some Florida waters showed the principle food of the redear to be blind mosquito larvae while in other lakes and streams their food was sometimes 90% molluscs. Like most fish they pick up a variety of food items from time to time, including some indigestible debris.

The best shellcracker bait—judged solely by results produced through the years—is the plain old wiggler, hooked in the middle. This should not discourage fly and spin fishermen, though, who catch their share of shellcrackers in "secret" places because they can seldom find room to cast over the "wide open" bedding areas across the state.

Whatever your tackle, join the spring shellcracker carnival. There's something therapeutic about this hard-tugging, sweet-tasting, early-spawning panfish. ●

Fishing Boats

FISHING

Outboard motor care, new fish-care products and angling gadgets are all items of interest as spring "fishing seasons" get underway

By CHARLES WATERMAN



WITH MOST FLORIDA fishermen the outboard motor is bought right after the tackle box. Maybe it even comes first.

Most fishermen put motors to a use they might not have been intended for in the first place. Take the time nearly fifteen years ago when I dragged an almost unrecognizable mechanical corpse to the late Harold Nevills, then a Johnson dealer in DeLand, Florida.

"I have been fixing these things for you for some time," Harold grunted, "but you may have to get another mechanic."

This brought outraged splutterings from me during which I explained I'd always paid cash, had never complained about the cost and didn't know what I'd do if my mechanic failed me.

"Why?" I wanted to know. "Why?"

"There is no sense in anybody beating up engines the way you do and I don't like to look at 'em," Harold said.

Well, Harold kept on fixing them anyway although it probably did rack his mechanic's soul to see what I was doing. Harold, former outboard racer, motorcycle racer and glider, trailer and boat builder, had the common belief that motors should run in water rather than mud, weeds and oyster shells.

At the time I was trying to learn a lot of new fishing country on the lower southwest coast and I figured propellers and lower units were expendable.

I believe my outstanding performance was the day when I completely wore out a 4-bladed work

prop on a 25-horse motor pushing a dinky houseboat from Everglades to Cannon Bay. I didn't know the channels very well and I have been told it was the lowest tide on record. Anyway, when we finally got to Cannon Bay (having stopped innumerable times to get out and push) those four blades were about the width of well-used butcher knives. I had thought the motor was winding a bit faster than usual.

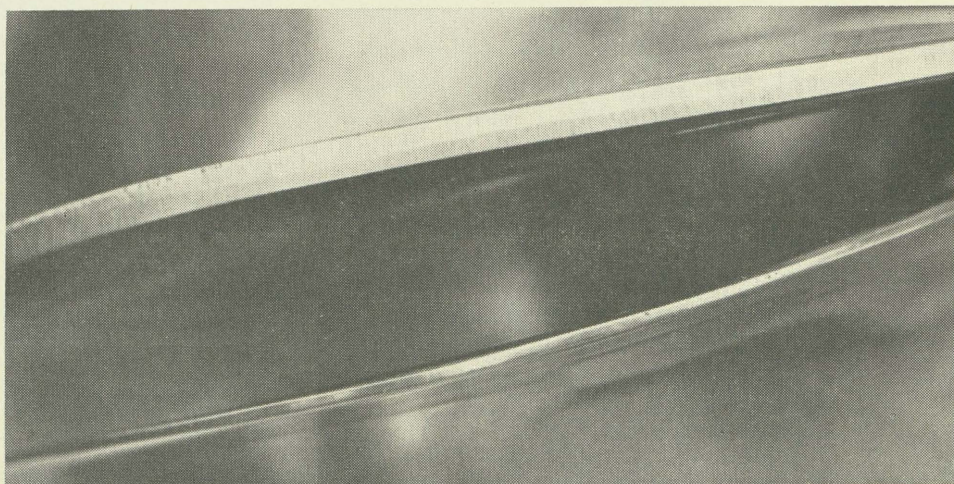
So the life of that aluminum propeller was approximately six hours. It wasn't broken—just worn out in mud and sand.

At that time, bronze or brass wheels were viewed with disfavor for several reasons. They were expensive, they could set off electrolysis that could destroy an aluminum boat and they were heavy. The extra weight was likely to snap a shearpin if you gunned the motor suddenly and it was very hard on the gear shifting apparatus. These complaints are mildly valid now but improved motors have almost overcome them.

I recently had a bronze wheel reconditioned for my 65-horse Johnson, used on a 16-foot aluminum fishing skiff. The work was done by the General Propeller Company of Bradenton, Florida, and Don Waples of Sam James Marine in DeLand delivered it to them with the explanation that I am pretty hard on props (this was probably unnecessary since the prop was worn to a nub). Well, the reconditioning was expensive but the finished job is like nothing I've ever seen before. They have left the blades

(Continued on next page)

Something unusual in blades for an outboard propeller. This picture is of the very edge of the blades. The "normal" blade is the narrow edge. A special rough service wheel has the wide edge—a full sixteenth of inch.



(Continued from preceding page)

very wide at the edge—a full sixteenth of an inch. When you note that some racing propellers are almost sharp enough to shave with you realize that this is really different—and, brother, it's heavy.

Will it slow the boat? Of course it will slow it some but for fishing purposes I doubt if the difference will ever be noticed. I haven't used it long enough to tell but they say it won't damage the motor if shifting is done properly.

With electrical shifting on many of the bigger motors much of the operation is in the palm of the guy who assembled the engine in the factory but most of the fishing motors are shifted "by hand" as is my sixty-five and my smaller motors.

Now damaged shifting forks on hand-shifted motors are generally the result of too gentle a shifting action. The proper way, even with a heavy, bronze prop, is to cut the throttle to a slow idle and drop her into gear quickly. There'll be a slight jerk but that's better than "easing" into gear and causing excessive wear on the shifting mechanism.

It's the poorly tuned motor that tears up the shifting mechanism. It dies when you try to idle it and you have to slam it into gear when it's turning too fast. That used to snap shear pins on an old 18-horse motor I used with bronze props.

They may have faults but in my kind of use a bronze or brass wheel will outlast a dozen aluminum ones. The electrolysis won't ruin aluminum boats if you don't leave the prop in the water when not running.

I had a brief moment of joy the other day when my dealer showed me a new Columbian propeller made of plastic, very light and built so that the hub could be replaced without purchase of a complete new propeller.

A salesman had said (I'm sure that wasn't the

statement of the factory) that this new plastic propeller would simply whirr through the oyster beds and bounce off rocks without damage. I bought one and it didn't. In fact, I doubt that it stood up as well as aluminum.

This doesn't mean that the plastic propeller isn't good in normal use but it comes apart when you hit things.

I hit things.

Now HERE'S A NEW product I suspect will be very valuable. I never tested it and if I had I wouldn't know if it worked or not.

It's made by the Calgon Corporation, Box 1346, Pittsburgh, Pa., 15230, who have produced a lot of chemical things of value to sportsmen.

It's "FreezGard," a specially processed food grade sodium phosphate for use in treatment of seafood prior to freezing. It is a white, free-flowing, granular powder and is dissolved in water. A pint of solution will treat about 14 pounds of fish. The solution is not to be stored overnight after mixing. Fish are dipped or soaked and the solution retains the fresh fish taste and moisture.

Okay, so I threw you down and haven't tested it. Wouldn't do any good. We just don't have any complaint with frozen fish and I'm such a crude seafood eater that I actually prefer it after it's been frozen for a while.

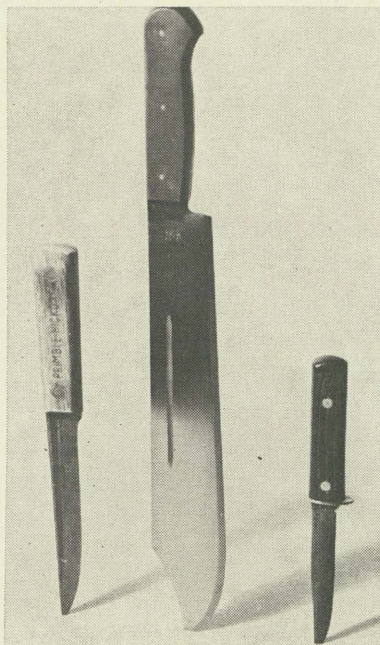
But I know that most folks prefer fresh fish to frozen fish by a wide and sometimes very loud margin and this should be the answer to their problem. I'm pretty sure it's good because some of the testimonials come from pretty sharp people in the fish business. And the Calgon people are all right.

A PROPER FILET KNIFE depends on the size of the fish. An ideal one is reasonably slender and some fishermen prefer one that's flexible. The ideal filet knife is long enough to take off an entire side of a fish with only one cut. Some who skin the fish as they filet it say the knife shouldn't be too sharp but I don't think I've ever had one give trouble for that reason.

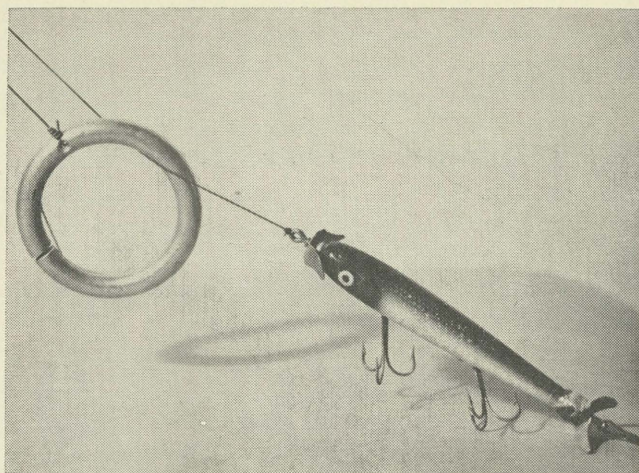
If there's a "secret" to skinning a filet after it's removed it's this: Start the skinning operation at the tail end and once the skin starts to come loose from the meat, keep the knife at a slight angle, hold it stiffly against the skin, skin side against the table, and then pull with an uneven swinging motion on the loose skin. This should peel it.

What's your beef? You understood the rest of the column, didn't you?

A TRADE MAGAZINE editor recently wailed his belief that the fishing tackle business is in a heck of a mess and I'm inclined to believe him.



Good filet knives for fish of different sizes.



How a "lure knocker" works. The heavy ring is slid down the line with a strong cord. When it encounters snagged lure it either knocks it loose, or hangs to it and then pulls it up.

I strongly suspect that most of the tackle boxes already contain all of the basics. If the fishermen are going to buy more stuff they must be sold on better, more refined tackle and more sporting methods of fishing. This is a sordid outlook when you consider that most of them want the most fish the easiest way.

I question if more automatic methods are the answer and suspect that there would be more fun in learning skills rather than pushing more buttons.

But there's a big convulsion in the fishing tackle business, some of the oldest and finest firms having been bought up by former competitors.

In the long run the tackle business has been hurt by cut rate merchandising and subordination of the small, well-informed tackle dealer who is able to give personal attention to his customer's problems. It has always hurt to see some guy stroll into a good tackle shop, buy a dollar's worth of hooks and get 50 bucks worth of information and then cross over to a cut-rate house and leave with an armload of gear from a clerk who was selling vacuum sweepers yesterday.

A "BAIT KNOCKER" is a gadget for unhooking a lure snagged below the surface. I've tried some complex arrangements that sounded good but required more mechanical aptitude than I inherited.

You can take a big snap of the kind used on harness or dog collars and slide it down your line to the sore spot and it will work better if it's weighted. Use a heavy cord to pull the whole works loose.

Maybe you can knock the hangup loose but if you have a multi-hooked plug there's a good chance you'll simply get it hung in the knocker and yank it loose with the cord.

The best one I've had is a nameless metal ring with a little wire gate to slip the fishing line through and a small hole to attach the heavy cord. The little

wire gate keeps the fishing line from slipping back out until the job's done.

Such apparatus became more and more helpful as fishermen went increasingly to bottom bumping lures, especially in Florida crappie fishing.

As I SAID once before, I believe some of the newer foreign-built inflatable boats rate more attention than they're getting. When I was showing an Italian outdoor magazine to some of my friends I found that most of them were amazed to see pictures of inflated boats being propelled by outboards of up to 50 horsepower.

These things are not to be confused with rubber life rafts although there's a similarity at first glance. The true, going inflatable has a rigid transom and deck and is tough enough to bounce off a lot of things.

I can see this type of thing for the person using a pickup or truck camper for long trips when he doesn't want to pull a boat trailer and figures a car-top boat would be too high off the ground.

Inflated boats are extremely safe and they'll float just about as well upside down as they will right side up. That doesn't mean they're necessarily ideal transportation for big water but at least they won't sink with you.

They have numerous compartments so a single puncture wouldn't put you on your life cushions. The newer models are extremely resistant to punctures anyway.

I won't go into detail on this but one of the better advertised imports is the Lidair, distributed by Rabion Imports, Inc., 1128 N. Water St., Milwaukee, Wis., 53202 and they have a catalog. They tell me that their Florida dealer is United Export & Sales, 310 Chamber of Commerce Building, 141 N.E. 3rd, Miami. These boats are from France.

FELLOW I KNOW WALKED up to his car from the lake carrying a canoe paddle and his tackle. It was in a popular camping spot and a half-tame black bear had the trunk open and was going through the supplies.

Angered at this presumptuous behavior, my friend whacked the bear's broad beam with the paddle. The bear jumped and started trying to run in the direction he was headed, shoving himself so far forward into the car that he bulged the whole works. They had to take the rig to a body shop.

I HEAR A LOT about dogs that retrieve fish. I don't own a fish retriever and am not looking for one but I have watched a black Labrador make a few attempts. It went pretty good until the Lab decided he'd meet the fish as it came to the lure. When the fisherman would cast the Lab would hit the water. Very discouraging. ●

IF YOU SUBSCRIBE to the theory that there is some good in all critters put here on earth, you'd probably admit that the lowly bowfin, compared to bees, butterflies, bass, and bluegills, would appear far down the list as being anything worthwhile. This finned oddball is truly a misfit in a watery world, an out-of-step pug-ugly successfully persisting from an ancient to a modern world.

Perhaps this fish derived its gluttonous disposition and ill-mannered personality naturally. For it evolved over 190 million years ago, being, with the garfish, our only living fish-like survivor of that era. The primitive bowfin may be rightly disdainful of the modern bony fish youngsters evolving a mere 120 million years ago, gaining so much favor while the bowfin had to remain its own surly, unwanted, and unchanged self.

The bowfin's past and present hardness hasn't been all by chance, however. Under conditions where other fish die, the bowfin frequently survives, thanks to its air bladder which still functions as a breathing aid. In modern fish this organ now serves (among others) as a hydrostatic device. When water becomes so depleted of oxygen that gills can no longer absorb it from the water, a modern fish is in distress. It wriggles at the surface of the water,

mouth half out, attempting to mix its own. But the beady eyed bowfin, with the lung-like bladder still attached to its esophagus, rises to the surface, gulps a bladderful of air, and serenely submerges to go about its business—which frequently is sating its voracious appetite on those fish in distress. When the supply of air is used up, the unconcerned bowfin heads to the surface for a new supply.

In part, this ancient "lung" helps account for the durability of the bowfin, enabling it to live when the waters of a marsh, lake, or pond become unfit for any other fish species. The ability and the will to survive are bowfin "built-ins."

Like most uglies, the bowfin has a list of aliases. You may know it as a mudfish, dogfish, spot-tail, grindle, grinnel, scaly catfish, cypress trout, cottonfish, or shoepick. Biologists label it *Amia calva*.

From its broad, conical-tooth-studded jaws to its bluntly rounded tail, the bowfin's elongated figure suggests durability and meanness. Close-set, smooth-edged cycloid scales give it a leathery toughness and appearance. Color is usually a dark olive or grey on top shading off to a dirty white or cream color below. There is frequently a suggestion of light colored bars extending through its mouth and a barred pattern in its long top fin.

Photo By Art Hutt



The Bowfin

built for survival

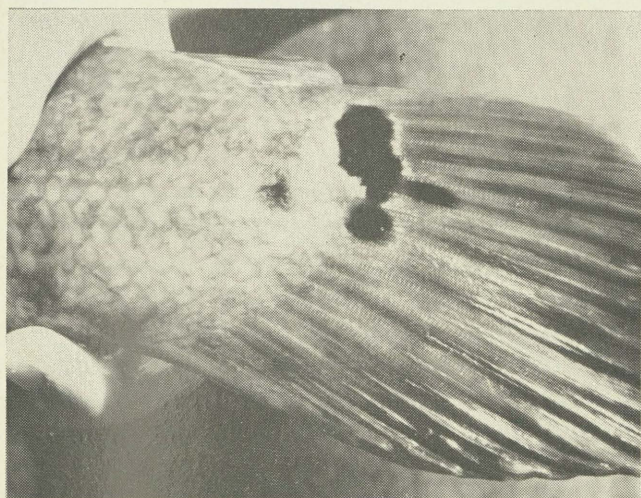
By ART HUTT

A quiet, shallow, weedy, mud-bottomed canal, coming from a large lake, is a favored bowfish fishing area. George Anderson, of Eustis, handles this one.



Photo By Art Hutt

Photo By Wallace Hughes



The bowfin is sturdily built with grossly overlapping scales, making exterior tough as leather. The long, primitive, fringe-like dorsal fin affords instant species recognition. The male bowfin sports a tail splotch, left, with orangish rim. Female sometimes has a spot but not with the male "colorful corona."

Some anglers may momentarily confuse the bowfin with a catfish (a Minnesotan may think it is a "southern" burbot) but the elongated dorsal fin is an instant give-away. Starting about one-third back on the body this primitive-formed fringe-like affair extends to the tail. When in motion it can move the bowfin forward.

While no fisherman in his right mind (and I'm a fisherman) would look for it, as a matter of curiosity, the bowfin has a bony plate between its lower jaws, another unusual feature of this fish.

The male always has a distinguishing tail spot—a dark conspicuous blob with a colorful corona. The female lacks this beauty spot—or if it has it, the female does not have the orangish edging of the male.

Bowfins are spread from the Great Lakes to Texas and Florida, preferring quiet bodies of water, big or little. They're a shallow water fish, hanging around marshy or weedy shorelines, quiet canals, or in lily-pad filled coves—rather than out in deep, open water. Although 23-pounders are on record, the average-big size in Florida is about 12 pounds and 31 inches—a powerhouse of a unit when it is cavorting on the end of your spinning line.

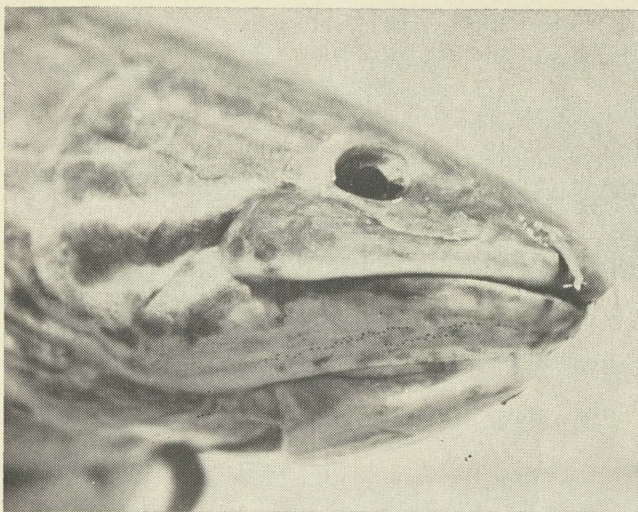
Bowfins spawn in the spring, selecting nest sites in fairly shallow water where vegetation abounds. An ideal area is the edge of a shallow marsh leading into a deeper lake. The male works at night frequently biting and tugging vegetation out of the way, clearing a spot on a sandy bottom or over twigs or other permanent debris. Then the old rascal, tail spot gleaming and lower fins a bright green, entices a couple of females in to deposit their eggs as it lends a simultaneous effort at their fertilization. The semi-sticky eggs are also guarded by the male. The father-to-be may not always be right on the nest, but it is always around watching. Where weeds abound, it may lay in the entrance way which leads to the nest.

The eggs hatch in 8-to-10 days.

Father bowfin takes care of the young, too. It will move the single animated ball-like group of young'uns along a weed patch, quickly herding any venturesome youngster back into the sphere. When they're about three inches long, the male gives up its babysitting chores.

After observing this filial "affection" one day in a canal between lakes Yale and Griffin, I remarked about it to a fisheries biologist. Apparently my recitation of the incident suggested that I was a little touched by this display of parental tenderness for I was quickly reminded that this was a "function" of the male and there was nothing fatherly about it and no tenderness involved. Which I knew. But I'm still intrigued that a rough-hewn character like *Amia* should make such a display—even if it is merely a mechanical gesture.

(Continued on next page)



Photos By Art Hutt

(Continued from preceding page)

Small bowfins are rather vividly marked. They tell me they make good fish bait—especially up north for pickerel. I haven't run into anybody who uses them in Florida, but I can see where they'd last a long time on the hook. The danger of introducing this unwanted fish into a lake by being used as fish bait is a point to consider, however.

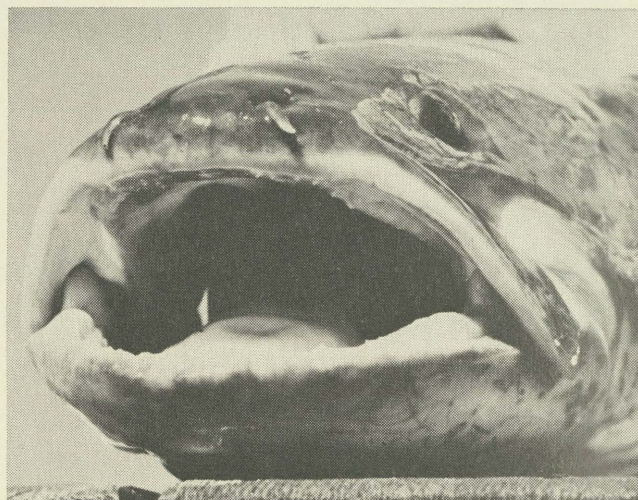
At the end of the first year, a bowfin can be 6-to-8 inches long.

There's no denying a bowfin is a gluttonous, destructive fish. It seems to be non-selective in its feeding habits, however, eating that which is most abundant and catchable—crayfish, molluscs, forage fish. In some instances, it's possible that the bowfin's appetite can be a biological aid. In many Florida lakes, due to deteriorating water quality, gizzard shad cause over-population problems. This natural predator, filling its stomach with what is handiest, may serve as an aid in reducing the abundant shad. On the other hand, it undoubtedly destroys gamefish and in some cases even competes with them for food. So, depending upon the environment, it would appear as though the bowfin could be either a help or a hindrance to better fishing.

Mass removal, even if it were possible, is not the answer, however, for it does not follow that rough fish are automatically replaced by game fish.

But there's one area in which the bowfin excels—and this is giving a good account of itself on the hook. Normally sluggish, when the fishy fossil feels something is amiss, it takes off like a fuel-burning funny car, then resorts to a determined tugging and twisting. Frequently, especially in shallow water, the toughy will cartwheel out of the water, hoping to shake the hook. What it lacks in appeal, it makes up for in fight. This is one fish that never gives up; close-to-the-boat line poppings are common when dealing with bowfins.

The strong jaws, somewhat flattened head, light-colored bars, left, are upfront bowfin trademarks. Bony plate between lower jaws is another distinguishing feature. Wide mouth and sharp teeth, below, adorn the bowfin's business end. A gluttonous disposition keeps this "water machinery" continuously active.



In a way, it is a shame that the fighting ability of this oldster isn't recognized and appreciated. One Alabama writer/biologist (Pete A. Hackney) has the same lament, stating that such relatively "worthless fish" as bonefish, tarpon, and jack crevalle (and I'd hesitatingly add American shad) are regarded as real game fish, perfect powerhouses to test tackle and angler. Yet the bowfin, able to hold its own (weight being equal) in a tug-of-war with any of these fish, is regarded as trash.

If you want to fish for bowfins deliberately, baits could range from worms, minnows, live shiners, dead shiners, cut bait, and artificials. Flashy baits with spinners are a good choice.

I recall one bowfin that lazily finned along after my boat when we were drifting through scattered maiden-cane, casting for bass. The blade of the kicker was down in the water and this nut of a bowfin was swimming with its nose just inches behind the bright propeller. Beats me what it had in mind but I'm next to positive it was attracted by the gleaming and slowly moving metal.

Bowfin hotspots could be quiet, mud-bottomed canals, potholes in marshes, coves in lakes, and practically any weed-filled shallow places that hold water.

I recall, too, the part a "no good" bowfin played in a day of my daughter's life. Maybe she was 5 or 6 years old and on one of her first fishing trips. A less-than-handsome but more-than-obliging bowfin took her bobber under and it was a real cane-poling struggle. The bowfin, about 15 inches long, finally lost and a proud and shiny eyed youngster had to

take the trophy home to show it to the grandparents and all the neighbors. A 15-pound bass couldn't have created a bigger commotion. At a high school age now, she still fishes. Moral of the story is that when you take a youngster fishing, you might consider breaking the youngster in on bowfins.

But a bowfin nearly saved my reputation once.

Do you have northern fishing friends stop by during the winter, all fired up and eager to go fishing? I do, and while I enjoy it, I'm beginning to shudder for I'm the world's worst fishing guide.

But one day in Lake Yale, I had a good buddy from Ohio (Marvin Puckett) out for the usual "boatride." We'd trolled, made casts until our arms were weary. The total was one 11-inch bass—a typical Hutt-guided day. Our last chance was staking out some shiners in the lily-pad filled cove behind Rabbit Island. When the sun's rays suggested it was quitting time, like it happens in the popular fishing magazine formula articles, my friend's bobber took off. It surged, hesitated, and surged again. I was suspicious. Then Marvin set the hook.

It was a delightful bass-like struggle which abruptly ended when the fish made one big lunge at the boat and the line parted. Unfortunately, I'd seen the long dorsal fin, the black tail spot of a 8-or-9 pound bowfin. Marvin's pride at being hooked into something big surmounted his disappointment at the loss. Even though it "got away," this was a fish he could tell the boys back home about.

Turning to me, he asked, "Just how big a bass was that, Art?"

Here was my chance to regain some stature. Who would know? I had put Marvin onto a good fish—whose loss he could still relate to the old fishing gang. To myself, I said, "Let it alone, Hutt. You should know when you are well off."

Then the trumpets sounded; Boy Scout badges flashed before my eyes. Shoulders squared, firm voiced, I cancelled my newly gained prestige. "Marvin, that was a bowfin!"

I didn't know about eating these fossils. I generally like to advocate the use of any natural resource that is going unharvested, but I'd heard tales of their flesh being unappealing so I decided to try it for myself. And it was quite an experience.

I filleted a 4-pounder, dipped the slabs in egg, then corn meal, and rushed it into the hot frying pan. So far so good except the flesh did seem a little soft, but the color was okay, and there was no objectionable odor.

When beautifully brown, my boy, Larry, and I put our forks to it. Normally broad minded, we promptly decided it was unappetizing, unappealing

and flavorless. The worst part was that it seemed as though we were chewing on cotton, an obvious explanation of the nickname, "cottonfish"—and an opinion shared by several contacts, including Barry Freeman, Chief of Fisheries of the Mississippi Game & Fish Commission.

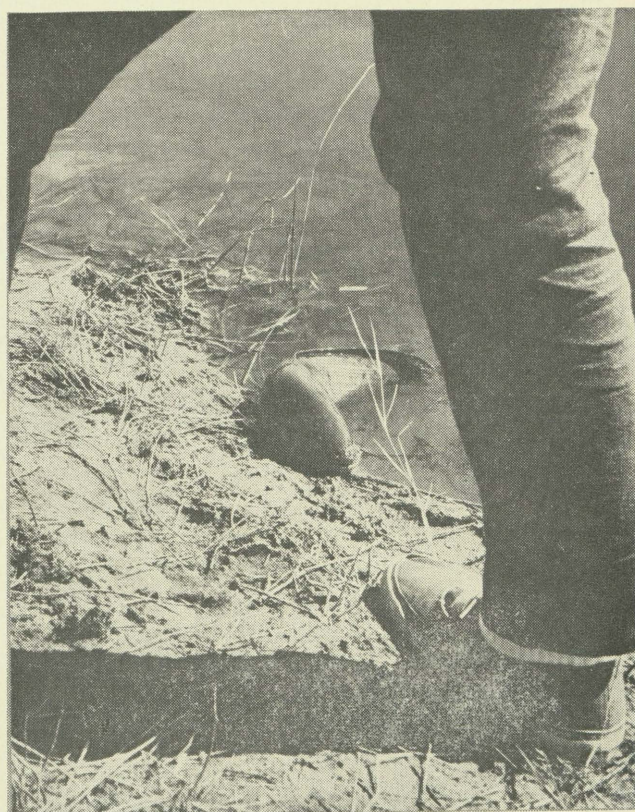
I suspect there are cooking methods around which will render the bowfin more palatable, however, so I wouldn't want to judge the fish on my one attempt—one book lists a "grinnel sausage" in which you boil the flesh, flatten into patties, then roll in corn meal before frying.

I noticed, though, that the fearless Quaker naturalist, William Bartram, who roamed about Florida in the late 1700's, termed the meat soft and muddy tasting and "is not much esteemed."

Years ago, there was a rumor around that the bite of a bowfin was poisonous. It may still persist today although I haven't heard it lately. However, anyone sticking his fingers in the mouth of a bowfin should know better. The sharp conical teeth, plus the extra strong jaws are more than a match for mere epidermis. There's danger of infection, yes; but as far as poison being injected (or whatever the rumor suggests), there's no truth in it.

So, whether you use them or abuse them, it looks as though the bowfin is here to stay. Some day it may even be a friend in need, the only fish capable of surviving in the watery habitats we are creating.

Far fetched, perhaps, but the bowfin may have the last laugh yet. ●



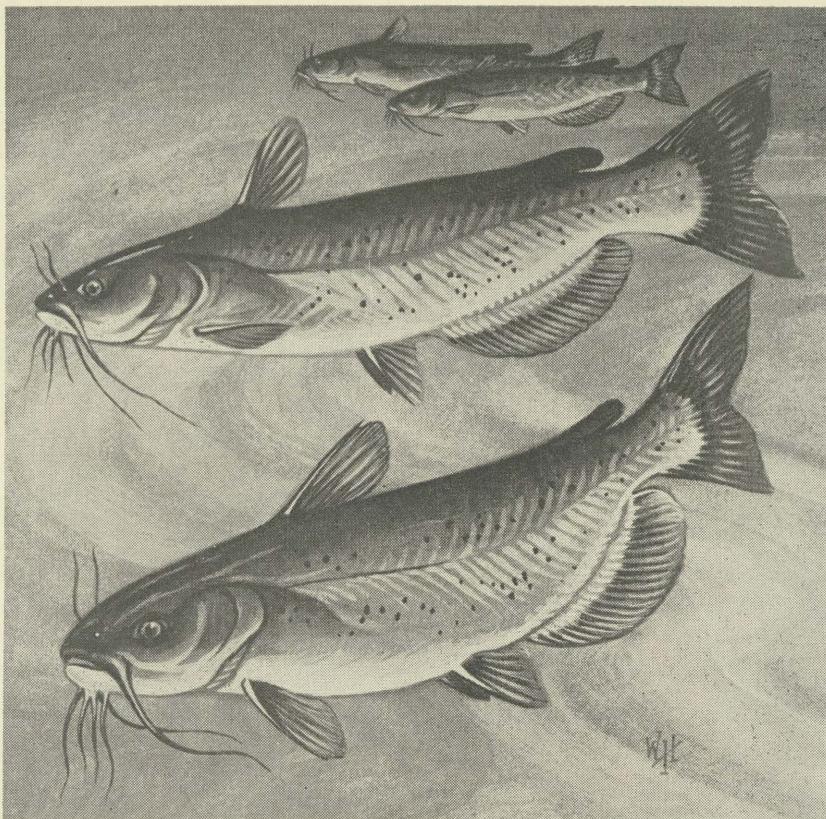
A beached bowfin contemplates its fate. They are game fighters—not prone to giving up easily. While no fan clubs exist, their fight is worthy of such recognition.

The slightly broader-headed, rounder-nosed male channel catfish appears below female. This fish becomes more popular every year in Florida, as a fine sport fish and a top favorite food item. It can be raised commercially like any other farm crop—but it takes planning, money, hard work and a good market to make it pay. Average production is two thousand pounds, per acre of pond.

CATFISH FARMING

In Florida

By A. D. ALDRICH



Drawing By Wallace Hughes

THE NUMBER OF inquiries received by the Game and Fresh Water Fish Commission indicates widespread interest in raising channel catfish commercially in Florida.

For several years this increasingly popular fish has been hatched and raised in ponds at the Richloam Fish Hatchery in Sumter County, where spawning success and growth rates indicate that, with considerable planning and labor and proper facilities, catfish can be raised profitably in Florida. And, because of the mild Florida climate, catfish grow year-round. Fingerling stock can be of marketable size in six to eight months.

The following general information is offered so that interested persons will better understand some of the basic requirements for successful catfish farming.

Water Supply

USING SURFACE water—from existing lakes, canals or streams—to supply fish ponds is not recommended. There is always the danger of introducing undesirable species of fish and organisms harmful to fish culture. It is next to impossible to mechanically screen out unwanted fish. In special cases where surface water is used, there are new chemicals available that will kill out undesirable fish without harming catfish. The application of these chemicals is for the experienced fish farmer or a fishery biologist, however.

The most desirable and economical water supply is from artesian wells—and even this water should

be analyzed to determine its fitness for fish culture. Moderate amounts of sulphur and salt are not harmful. The sulphur soon dissipates and a small amount of salt is actually beneficial because it helps prevent certain fish parasites.

Many areas of Florida have an abundance of good ground water close enough to the surface to allow pumping with centrifugal pumps. Deep well turbine pumps are also efficient. Under normal conditions a six-inch pump will provide 1,000 gallons of water per minute—an amount sufficient to maintain fifty surface acres of fish ponds.

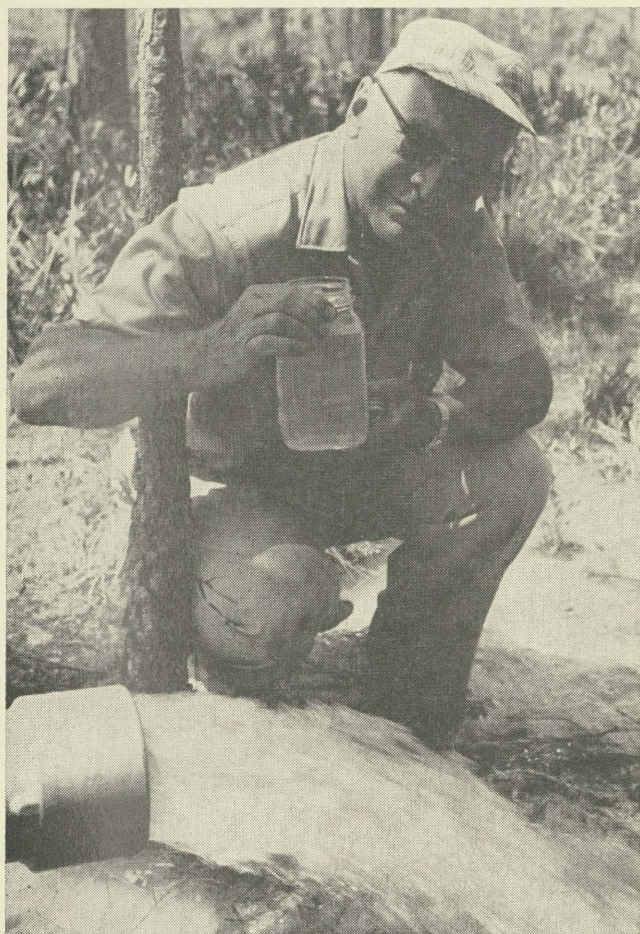
Pond Construction

THE SOIL at the proposed pond site should be rich and should have clay or marl subsoil to prevent loss of water by seepage. Ponds may be of any reasonable size, depending on the topography of the land. But for practical fish farming, ponds of one to five surface acres are recommended. (The number of ponds operated must, of course, be determined by the individual, based on his resources and production goals.)

The ponds should be built so all the water can be drained and the bottoms dried and cultivated. Drying helps control the growth of parasites and disease organisms and eliminates aquatic beetles which prey on small fish. This is one of the reasons for having small ponds. They can be easily drained. Also, fish in a small pond can be more easily sampled, more efficiently fed and harvested, and in

case of an epidemic, losses of fish are minimized, the problem is confined and treatment is more effective.

A drain pipe should be installed under the dike at the lowest point in the pond. It can be of concrete tile or other composition material. Use at least a six-inch pipe for one to two acre ponds and increase the pipe size proportionately for larger ponds.



In order to control the water level—and to prevent loss of the fish while draining the ponds—a screen box, or riser, should be installed at each outlet, each with an ell at the bottom so that it can be raised or lowered to regulate drawdown. A concrete “catch basin” should be built at each outlet to facilitate removal of the fish after drawdown.

This is extremely important: Each pond should have a separate water supply valve and drain. It is not desirable to run water through one pond into another when filling or to drain water through a series of ponds. Obviously, this would spread disease and parasites, defeating one of the purposes for having separate ponds.

Ponds should be constructed so that no surface water can enter. Surface runoff entering ponds during heavy rains can cause loss of fish and sedimentation problems in the ponds. (Catfish have a tendency to swim upstream and will swim right out of a pond if runoff is allowed to enter.)

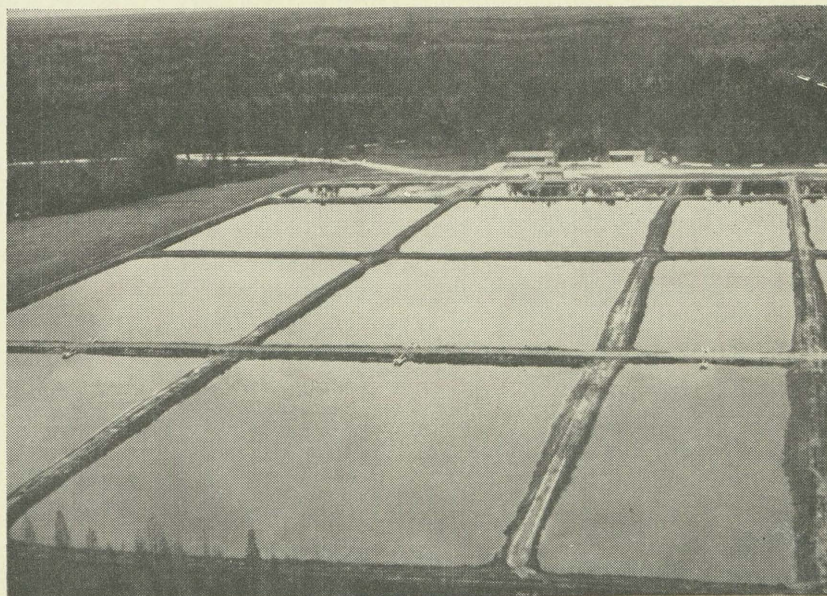
Pond embankments should have a foot or two of “freeboard” at normal water level to guard against inflow—just as the drainage system must be adequate to prevent bank overflow. Either problem might occur in Florida in a good hurricane rain.

Catfish ponds should have a depth of at least five feet at the outlet and no less than three feet at the shallowest part. And remember, the bottom should be sloped—much like a swimming pool—to allow complete drainage. Deeper water is desirable if conditions permit because catfish like murky water—which can be maintained by systematic fertilization, an extremely important aspect of fish farming described in available technical literature listed. Deep, dark water also discourages the growth of aquatic vegetation, which is undesirable in commercial fish ponds because plants consume much of

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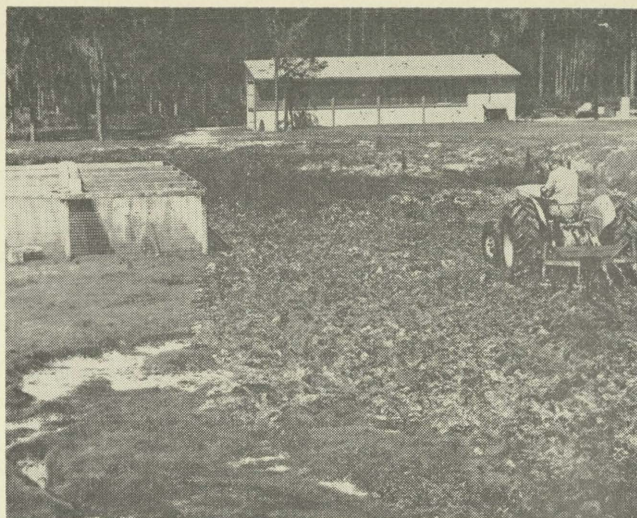
Photo By Jim Reed

The author, above, whose fish culture experience dates from the early 1920's, collects a hatchery water sample for chemical analysis. He says good water is the lifeblood of successful fish farming. Many small ponds offer great advantages over the single big pond or lake for catfish production and handling. The largest of Richloam Hatchery ponds, right, are two acres each; the smallest is about one-eighth acre. Each has water supply and drain.





Photos By A. D. Aldrich



The concrete "catch basin," left, built at lowest point in pond, makes removal of fish after "drawdown" quite simple. Once a year the pond bottoms, above, are dried and lightly disced. This aerates and enriches soil, also cleanses it of fish disease, and parasite organisms—to which channel catfish are quite susceptible. Note welded wire brood-pens.

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the water's fertility, may cause oxygen depletion in the water, and they interfere with harvesting the fish.

In planning, remember that there are experts in the water supply business and in pond engineering and construction. Obtain professional advice before any earth is moved or any pumps installed.

Stocking the Ponds

FOR THE BEGINNER in the channel catfish farming business it is recommended that fingerling fish be purchased for initial stocking. A list of producers may be obtained from the Fisheries Division, Game and Fresh Water Fish Commission, Tallahassee, Florida 32304.

The larger, more reliable producers of channel catfish are located in Arkansas, Alabama, Georgia, Mississippi and Louisiana. They deliver fish to Florida distribution points in huge tank trucks built especially for the purpose. Current price quotations should be obtained before ordering but channel catfish fingerlings can usually be purchased for \$25 to \$100 per thousand, depending on the size of the available fish and the size of the order.

Fish are available from the commercial hatcheries practically all year but stocking in the spring with five to six inch fingerlings is recommended. This takes advantage of the maximum growth rates during the summer, making possible an early fall harvest—which allows the vacated growing ponds to be drained for drying and cultivation through the dry winter season.

Brood fish should be held back from the original stock for production of fingerlings for the second crop. Young-of-the-year fish so produced are moved

from the hatching tanks to small holding ponds until they reach the size recommended for "stocking out" in the growing ponds. (Hatching techniques are described later.)

Although spring stocking is preferred, in a case where the beginner's ponds were completed in the summer, initial stocking could be done in the fall—especially in south Florida, where growth is excellent all year. Stocking in October, for example, with three to five inch fingerlings, should provide a spring harvest.

Barring major problems, catfish should average one pound in weight six to eight months after stocking. If the fish are to be marketed at three-quarters of a pound average weight, 3,000 to 4,000 fingerlings should be stocked per acre. If they are to be marketed at one pound average weight, the stocking rate is 2,500 fingerlings per acre. These figures allow for natural losses due to injury and predacious birds and snakes.

Two thousand pounds of fish per acre of pond area is good average catfish production in Florida. Even better growth can be expected after experience in "catfish care and feeding" has been acquired and after the productive capacities of the individual ponds are learned.

Feeding the Fish

SINCE IT IS THE feeding program that determines the profit in fish farming, all available information concerning feeds should be studied and carefully followed.

Channel catfish should be fed three per cent of their body weight each day. They grow quite rapidly so it is necessary to sample and weigh fish from each pond about once a week and increase their

feed in proportion to weight gain. A regular schedule of feeding should be arranged. Feed at the same time and at the same places daily. The fish soon learn to congregate at the feeding stations, which makes it convenient to observe their condition and to obtain seine samples for determining weight averages.

Some growers prepare feeding trays which are placed on the pond bottom at the feeding stations. This allows accurate observation to determine whether or not the fish are consuming all the feed as they should. (If not, the feed should be decreased accordingly.) Catfish feed is expensive and of high nitrogen content. Therefore, care must be exercised to avoid over-feeding. Since the unconsumed feed enriches the water it may cause oxygen depletion. This condition should be watched closely during the hot summer months. When the pond water reaches 90 degrees F. the amount of food should be reduced by about one half.

There are many specially prepared feeds for fish. It is usually more economical to buy a pelleted, commercially produced feed than to mix it on the

farm. A great deal of research has been carried out concerning catfish feeds and most feed dealers can furnish a feed prepared according to the best known formulas. (The information on catfish farming prepared by Dr. H. S. Swingle, Auburn University, Auburn, Alabama, is probably the most applicable to catfish feeding in Florida. The bulletin is listed later.)

The beginner's catfish fingerlings will be hungry when they are received. The haulers usually keep them in tanks without feeding for at least a day or two before making deliveries. Feeding should be commenced as soon as the ponds are stocked.

Harvesting the Fish

THE TIME TO BEGIN harvesting the fish depends on the market size desired. Some markets prefer catfish of one-half pound dressed weight. Others prefer fish dressing out at three-quarters of a pound or at an average of a pound each. Normally, channel catfish dress out at 60 per cent of their live weight. Therefore, marketing may begin when the fish weigh three-fourths of a pound and up.

It should be noted here that channel catfish do not grow evenly in size. There will always be a certain percentage of the crop that will have to be sorted out and held until large enough to sell. So the grower will need facilities such as tanks in which to sort the fish and small ponds in which to hold them until they are marketable size. When the growing ponds are drained or seined at harvest time this can present a problem. The undersized fish can be put back into the pond from which they came but segregation by size in other ponds is preferable. It prevents continual recapture and handling of the same fish as harvesting continues.

There are several methods of harvesting fish. Total harvesting is accomplished by draining the pond and removing the fish at the catch basin. In this

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Photo By Gene Smith

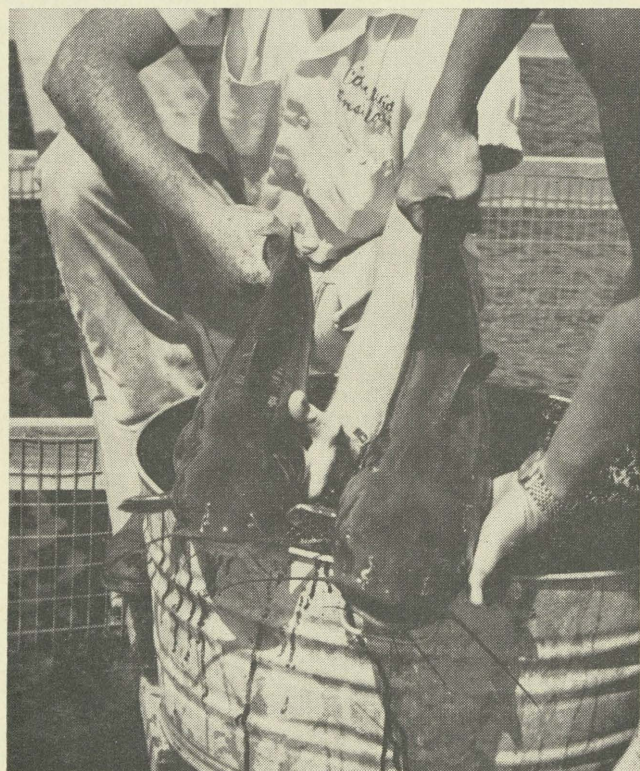
Ponds should be stocked in the spring with 5-to-6 inch fingerlings, above, available from commercial producers. These can reach market size in 6 to 8 months with correct feeding. The pond embankments should have 10-foot minimum crown to accommodate other vehicles and mowers, right. Sodding bahia or bermuda grass prevents erosion. Attendants check fish growth rate with lift net.



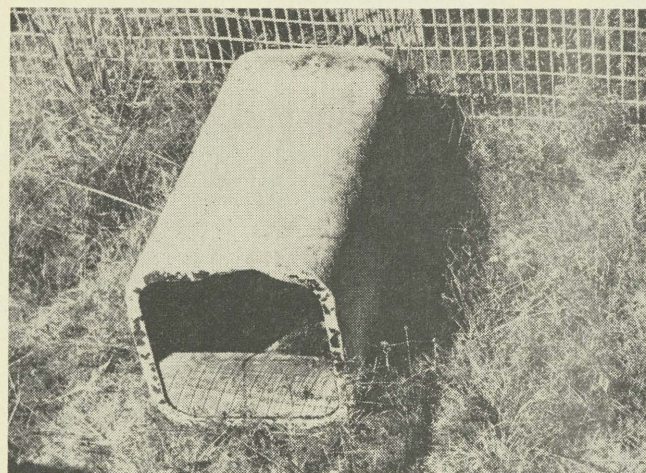
Photo By A. D. Aldrich



Photo By Wallace Hughes



Paired channel catfish, left, weighing 2-to-10 pounds each, are placed in brood pens, above, for spring spawning—occurring when water temperature reaches 75 degrees F.—normally April and May in Central Florida. They must have a flue tile with the one end stopped and the entrance half closed. From den, fertilized egg mass is moved to indoor hatching trough. Fry hatch in a week.



Photos By A. D. Aldrich

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method, prearrangements must have been made to handle and market a large volume of fish at one time.

When smaller sales are made, the fish can be seined up at a feeding station quite easily. A half-inch mesh seine long enough to surround the feeding area is recommended. All seines used to harvest catfish should be treated with a solution of tar or asphaltum so the fin barbs won't hang in the meshes too badly.

Ordinary wire traps and slat baskets can be used to harvest catfish. They should be baited with cottonseed cake or a smelly cheese preparation or other "stink bait."

The grower is cautioned that the use of seines, wire traps or baskets must be restricted to his established commercial ponds. The use of these for

taking other than artificially propagated catfish is closely regulated by the Game and Fresh Water Fish Commission.

Dressing channel catfish is a slow and expensive operation. Therefore, dressed fish should bring twice the price of live weight or un-dressed fish. The market situation should be thoroughly investigated and understood by the catfish farmer. Arrangements for quick processing and sale should be made before harvesting begins. Wholesale fish companies, chain stores, local fish markets and consumers themselves are all likely markets for the catfish crop. The Florida fish farmer with a \$50 wholesale fish dealers license can sell to all of these.

There is still another way to increase the profits from raising catfish commercially. Sport fishermen, particularly those in more populated areas of the state, would gladly pay for the privilege of taking some of the crop by hook and line. Fifty cents per pound, live weight, or a flat rate of three or four

fish for \$1.00 would not be too much to ask. Profit from allowing hook and line harvest might even exceed the dressed fish operation.

Each grower will need to devise whatever method of harvesting best suits his marketing conditions and his fish handling facilities.

Hatching Channel Catfish Fry

AS STATED EARLIER, we recommend that the beginner purchase fingerling fish for stocking his ponds. But experienced growers maintain a stock of brood fish—weighing from two to ten pounds each—and produce their own fry and fingerlings.

The adult fish are paired and placed in specially prepared wire pens in the brood ponds—or they are released into the ponds at the rate of about 15 pair per acre of pond area.

The brood ponds or pens must be provided with dens in which the fish do their spawning. The dens can be common oil drums of 20 or 30 gallon size, flue tile with one end stopped up, plastic garbage cans, or stone jars made for the purpose. Whatever the device, the catfish must have a container in which to do their courting and spawning.

Eggs are deposited and fertilized in layers until the full spawn resembles a small loaf of bread or a fat pancake. The male fish guards the spawn until the fry hatch—which requires from six to eight days. He will strike at any intruding object while guarding the eggs, including the hands of any careless attendant examining the dens.

If proper facilities are available the spawn may be removed from the den and placed in troughs of running water for hatching. This is the method used at most government fish hatcheries and by the more experienced fish culturists. For full details concerning this operation, study the technical literature available and, if at all possible, visit a hatchery where channel catfish are produced.

Conclusion

AFTER READING this far anyone should realize that the information given covers only the fundamentals of fish farming—a specialized business like any other branch of animal husbandry. We have not attempted to discourage or encourage anyone concerning a catfish farming enterprise. Anyone still interested in spending the required money to become equipped should collect the following bulletins on the many details involved. The list is by no means complete but in our judgement these cover their subjects quite thoroughly . . . and most of them apply to Florida.

The finished product—delicious channel catfish weighing up to a pound each, a popular market size. They dress out at about 60 per cent of live weight, and should bring twice the profit of whole fish if processed by a grower. Hook and line anglers are willing to pay well to catch their fish direct from ponds.

Suggested Publications

1. Experiments on growing fingerling channel catfish to marketable size in ponds. H. S. Swingle, Auburn University, Auburn, Alabama 36830.

2. Some new results in the treatment of ponds to control some external parasites of fish. Ray Allison, Auburn University, Auburn, Alabama 36830.

3. Treating Catfish for Parasites and Disease. A. H. Leonard, Ralston Purina Company, St. Louis, Missouri 63102.

4. Channel Catfish Farming in Louisiana. James T. Davis and Janice Hughes, Louisiana Wild Life and Fisheries Commission, Capitol Station, Baton Rouge, Louisiana 70804.

5. The Spawning Behavior of the Channel Catfish. Howard P. Clemons and Kermit Sneed. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D. C. 20240.

6. The Food Habits of the Channel Catfish in South Florida. Forrest J. Ware, Florida Game and Fresh Water Fish Commission, Lakeland, Florida 33802.

7. Parasitic Epidemics Affecting Channel Catfish. Ray Allison, Auburn University, Auburn, Alabama 36830.

8. For current bulletins and publications, request to be placed on the mailing list for catfish information from the Department of the Interior, Bureau of Sport Fisheries and Wildlife, Washington, D. C. 20240.

9. Other southeastern states' game and fish commissions also have papers and bulletins on catfish farming. ●



sport fishing and how to

Make It Work

By CHARLES WATERMAN

ONLY A FEW OF US fish, as the saying goes. The rest of us just have our lines in the water.

Once the rod and reel are right and the lure is tried and proven by someone, mere mortals are likely to assume that from there on in it's simply a matter of setting the hook and netting the catch.

Thank goodness it isn't that simple or all the fish would long since have been deep frozen and what little dignity still clings to the sport of angling would have disappeared. There may not be secrets, but there sure are a few gimmicks.

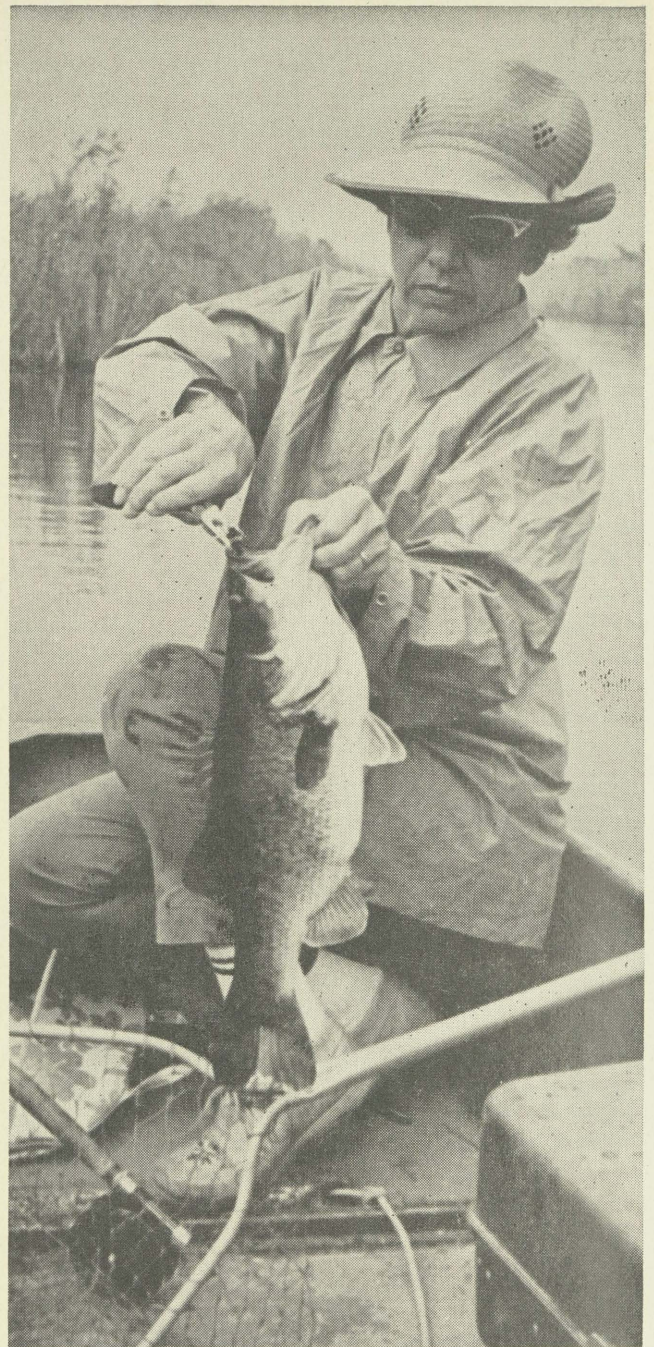
If your bait didn't need some help from your end you could just send it out alone and watch television. The really great anglers (and "great" isn't too strong an adjective at all) have a lot of English on the lure, bait or fly; often they don't know themselves how they got that way or even what they're doing that makes fish leave home, but lure manipulating skill shows up on the stringer.

Florida's the home of fishermen who like to work the lure themselves. For years the Florida fishermen have for the most part preferred lures that required activation other than simply reeling in and it's been 20 years since I first heard of the "Florida whip," simply a constant movement of the rod tip during a retrieve. Some of the northerners who made their first visits years ago, and were used to simple retrieves, suspected that the bridge jockeys along the Florida coast might be suffering from a strange Southern malady that made it impossible for them to hold their rods still.

But there are a lot of different kinds of rod tip wiggles.

Years ago four of us were holed up back on the mangrove coast of southwest Florida fishing for bass, snook and tarpon. Fishing was good and all but one of us were having a picnic. The single forlorn individual couldn't catch a fish—any fish. He was an experienced outdoorsman but primarily a hunter—hadn't had much casting experience.

We were using plugging rods most of the time and some casting accuracy was required but it didn't take much of that to catch at least a few fish. Poor Joe (not his real name) caught nothing.



Without Joe along, two of us slipped into a tidal creek just before dusk and located one of the finest concentrations of snook I've ever met. It was one time that I went away and left them looking for the baits. We'd caught all we wanted and, with Joe in mind, we sneaked back to the dock, certain that Joe'd knock them dead on the same tide the following evening.

Next eventide we slid up the creek with Joe in the bow, slipping the oars into the water as silently as possible and with so little fuss that an owl never even stirred from an overhanging branch. All I heard was a buzz of mosquitoes and one shattering strike 'way up ahead somewhere.

The snook were in the same place as before. Joe's first cast produced a great bulge that followed his

plug almost to the boat. The same thing happened the second cast—and the third. About the dozenth attempt there was a gurgling swirl around his darter and he tried to set the hook but there was nobody home. It went on and on. We tried to coach.

"Twitch it," I'd say. "Kind of yank it. Make it blurp! Pull it faster! Let it sit for a while. Let it gurgle. Sort of whip it in."

And the other two non-fishing passengers gave similar advice.

It got almost dark and Joe still hadn't had a bona-fide strike. The fish went round and round his plug, they bulged at it and swatted playfully at it but nary a fish took it in his mouth.

When it was almost time to go and Joe wasn't watching I picked up a rod with a plug exactly like his and flipped a single cast back behind the boat. There was a solid jerk but I never struck back on the fish because I didn't want to hurt Joe's feelings. Maybe it was just a fluke, I thought, so I cast again. This time a snook hooked himself and came out in a splattering jump (the creek must have been congealed with them). Joe whirled to see what had happened.

"Fool luck," I apologized. "Just happened to get one. I guess they're not really taking."

Not really taking? Oh, Brother! I wouldn't want my hand in *that* water.

The next day we finally got some fish for Joe. We trolled.

In private, one of the other guys discussed it with me.

"His lure is dead," the guy said. "It comes in like an old shoe or maybe a piece of baloney. He can't make it look alive. But it looks like he could catch one fish."

Joe had the same luck with bass later in the expedition. Don't put me down as the hero of the piece. Anyone but Joe could have caught those fish. He had no feel for it.

Feel for it? There are a lot of different feels for a lot of different kinds of fishing. Bob Budd can catch 12 fish to my one with his little ultra-light spinning outfit. Chuck Schilling could catch maybe 25 to my one with his jig bouncing act. Mrs. Bill Miller from Pittsburg, Kansas, can sit in the back of the boat and catch 25 bass to my one on plastic worms with me in the bow and getting first chance. I don't know how many bass Jack Orchard could catch to my one with a plastic worm. I never got around to catching my first the time I went with him. I stood by a guy on the Tamiami Trail canal, used the same fly and watched him catch eight snook to my none.

Before you switch to another fishing writer, let me say in defense that, on occasion, I have done just as well as the other guy and have even come out ahead a time or two when it happened we were playing in my ball park.

Now I am going to talk about specific methods of getting the most out of specific lure types. I am not an authority on all of them and will have to parrot someone else's report in some cases. On others, this is pretty straight stuff.

But first, when it comes to the Florida whip or more gentle twitches of the rod tip there are some simple techniques that will make you more efficient and keep the operation less tiring.

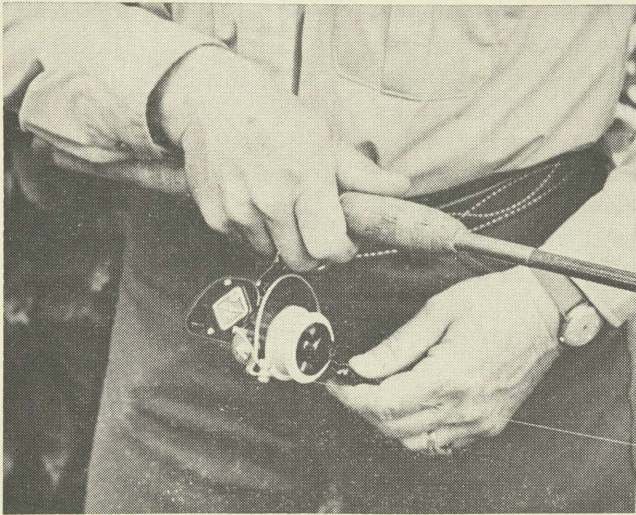
If the series of jerks must be very hard as in some salt water fishing and in extremely violent bass lure manipulation, most fishermen will find it easier to work the rod against the palm rather than against the fingers.

It's like this: A right-handed plug fisherman is holding his rod and reel in his left hand and cranking with his right. His firmest and most restful grip is with the plugging or spin-cast reel cupped or partially cupped in his left palm. The procedure is to switch the rod tip and then take up slack with

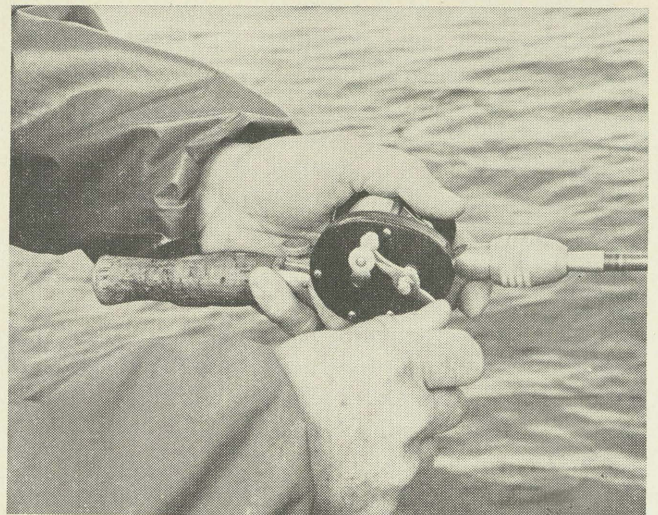
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Very small lures such as fly rod bugs, left, are generally at the best when worked very slowly, as for this rainy day bass. In the waters as shown at right, it's a foregone conclusion that a lure will strike grass. The lure used should be a fairly weedless type and accent its own attraction by causing a wriggle of vegetation.





One of the best ways of "whipping" an open-faced spinning rig is to hold it across the body as shown here. The long handle, in this case, is partly supported by the forearm.



This is the most effective way for holding a baitcasting outfit when the lure is to be manipulated with force. The left thumb is near spool—can be used as brake if needed.

(Continued from preceding page)

the reel handle before yanking it again. Now if he yanks the rod tip from right to left he will be pulling the reel and handle *away* from the hand and will have to grip it very hard. But if he will make his yanks from left to right he will be moving the rod hand toward the palm, in effect forcing the rod into the hand instead of pulling it away. Saves a lot of energy in a day's fishing. Most experienced lure workers hold the tip rather low in this operation.

Now using an open-face spinning reel, the right-hander generally holds the rod in his right hand and cranks with his left. Here, it's generally more restful to work the tip from right to left—again forcing the handle into the palm instead of out of it. Are you with me? Many persons with small hands and weak wrists would be able to do it this way after giving up on another method.

Women and children can often do fine with a spincast or plugging rod when they stick the butt

into their stomachs and hold the foregrip of the rod during the retrieve. This gives better leverage but makes the whipping action somewhat slower and it is harder to get a crisp pop from a surface plug this way. In effect, the fisherman is using forearm rather than wrist action.

This can be a blessing in disguise. Using darter plugs on the surface, my wife Debie gained a reputation for catching bigger snook than the rest of us. A complex spy campaign brought us to the conclusion that her seemingly awkward system of rod butt in stomach and left hand on foregrip caused the plug to take a slightly longer dart as it gurgled, apparently attractive to the larger snook. I don't think this is an advantage with black bass.

In working flies I twitch the rod from left to right, even though I hold it in my right hand. There's a difference, though. The soft tip gives a desired action with less movement on the other end.

There is a little sleight-of-hand in keeping the spinning or casting rod ready to strike a fish. As the rod returns to a striking position after being twitched the reel must take up the slack instantly.

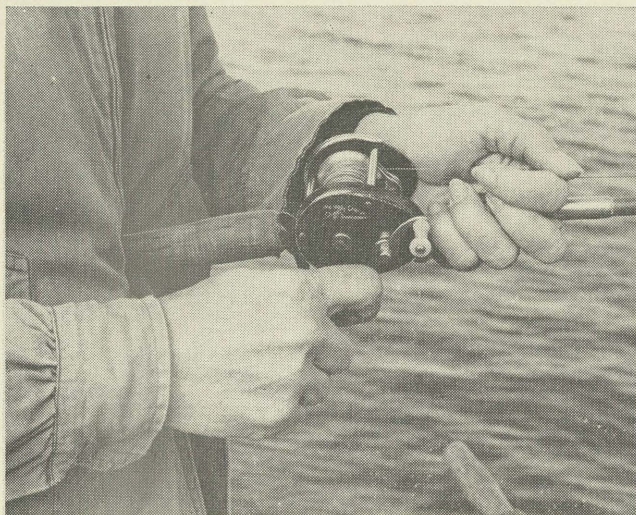
There are many ways of executing the whip or jerk but a little study of the above might show you why you get tired after a little of this business.

If you have occasion to use a popping rod or very heavy spinning rod, check the methods of putting the long handle under your arm for added power. With lighter spinning rods the handle can sometimes be braced against the forearm.

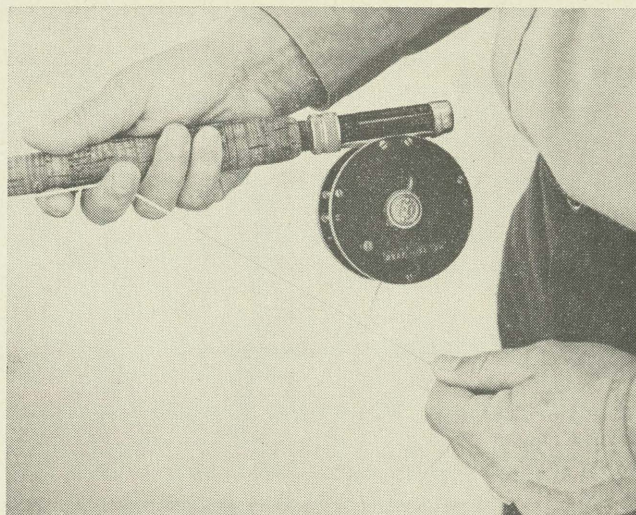
Some top hands with plug casting rods will flick the tip to make the plug hop or pop and then as the tip goes back to where it started they'll flip the reel handle and spin it free until the line draws taut



The cupped hand hold as applied to spincast reel and rod. By twitching it from left to right the rod is forced into the hand instead of away from it, making it easy to hold.



A person lacking the strength to work rod violently, with one hand, can substitute with this system of pushing butt into the stomach, and holding on to foregrip of the rod.



The fly fishing tackle is best handled like this for any snappy manipulations, or fast retrieve action. All of the retrieving is done under just one finger of the rod hand.

again. Then the thumb of the rod hand stops the turning spool again. I've seen it frequently on piers and jetties, and confess that the first time I ever witnessed it was while fishing with Bob Ramsay of Daytona Beach many years ago. I can do it but it isn't particularly helpful to me as I'm awkward at it. These rod handling techniques are less important if the bait moves slowly. Generally it's only violent rod motions that actually tire you but full time rod control hooks more fish and if you're a fumbler some small change in mechanics may straighten things up.

Now as to specific lure types: The old, underwater, torpedo type bass plug was out of date when I was a teen-ager. I had plugs with built-in wiggles, darts and gurgles and was extremely hurt when I encountered an uninformed, aboriginal type with only one plug—an old torpedo number—and with twice as many fish as I had.

The torpedo plug in standard form goes straight through the water and isn't helped much by jerks and twitches but it's still very effective on occasion and my favorite use for it is over grass beds. The stunt is to reel it steadily but at a speed which will make a barely visible wake on the surface. That generally means it's an inch or two deep. Most of these baits in bass size have three treble hooks and spinners fore and aft. To get the desired effect you generally hold the rod tip high.

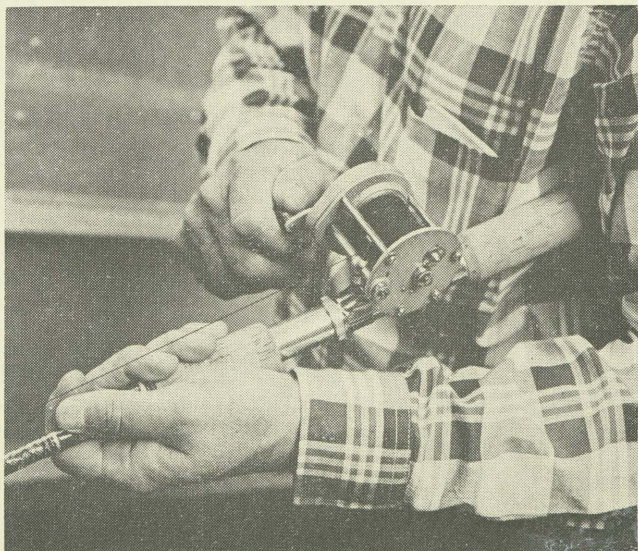
The metal wiggler baits (Arbogast's Hawaiian Wiggler is my favorite), usually with plastic skirts or porkrinds, can take a bit more manipulation. By changing reeling speeds drastically you can allow the spinner to break surface intermittently, and by dropping the rod tip and slowing your reeling you can send the lure diving into a pocket. This takes

no great skill; just constant attention to what you're doing. Believe me, manipulations of this sort will get more strikes.

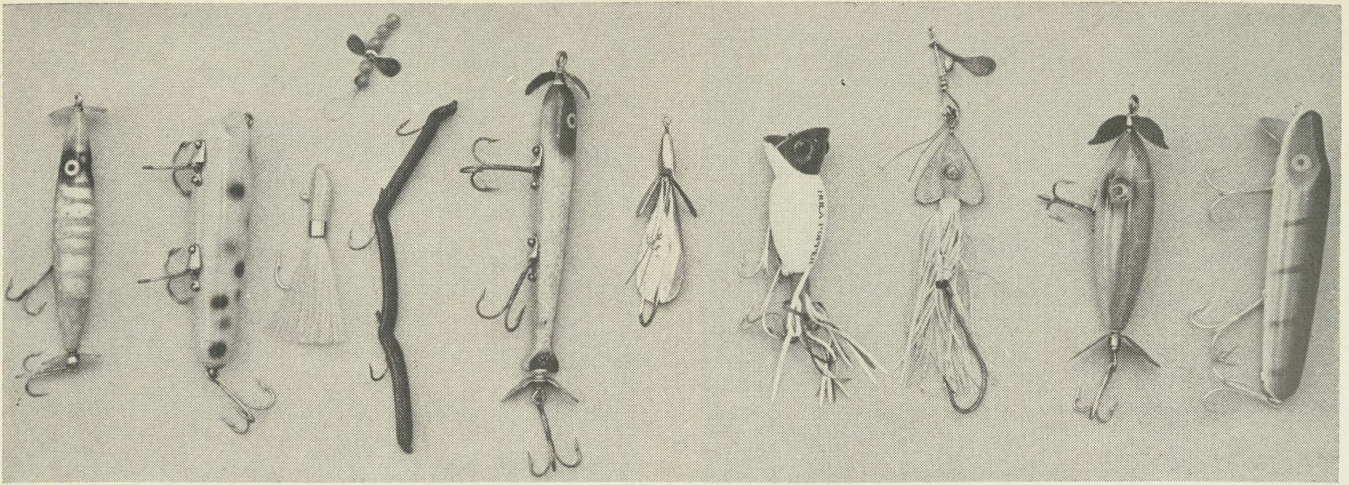
The wobbling spoons (Johnson Silver Minnow and Weedwing are good examples) are at their best in cluttered waters and about as weedless as good fish catchers can get. Their appeal is actually enhanced when they hang up slightly, shaking the grass or moss, and they can be yanked clear out of the water in fast, violent retrieves. Baits that shake grass, weeds or branches sometimes attract customers from great distance.

The wiggling plugs with mouthpieces are made to be attractive with steady retrieves but an occasional change of pace will almost invariably add to their appeal and their depth is easily changed, something beginners seldom realize. A sinking plug with a lip generally can be worked anywhere from top to bottom if the caster will use care in his tim-

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This is good way of handling a heavy, two-handed rod when the lure is to be whipped. The long butt handle is simply held well under the left arm by a right-handed fisherman.



The above represents fundamental types of lures that go with both casting and spinning tackle. From the left; Heddon Dying Flutter, one of the "stick types" that sits with its nose up; the Darter plug that serves on the surface until reeled in swiftly when it submerges and becomes an underwater wiggler; a typical Jig type for a variety of retrieves; a plastic worm; a Tarpicuda, good example of the underwater torpedo; a Weed Wing, weedless spoon; Hula Popper, exclusively a noisy surface plug; a Hawaiian Wiggler, typical metal wiggler bait; B-W surface plug, typical of level riding surface baits; venerable Heddon Vamp, a lipped wiggler that floats when at rest.

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ing. If he lets it sink he can practice counting as it goes down until he establishes the depth he wants. But, all in all, the lipped, wiggling plug will come nearest to performing on its own.

The jig and its close relatives, the darts, are probably most versatile of all. A good fisherman can bump one on the bottom for crappie (speckled perch) or zip one along near the surface with a school of bait. One of the fish-catchingest stunts is to knock up little clouds of sand with it as it is retrieved slowly across a smooth bottom. This is an expert's lure and generally goes best with a soft-tipped spinning rod. Bottom-worked jigs are nibbled, nipped and tugged at by all sorts of fish and the true expert will play a little game with the fish, never really scaring him away and finally setting the hook when he figures his customer has really taken hold.

The plastic worms, generally fished on the bottom, have a lot in common with the jigs but effective worm fishermen use the same system as live bait fishermen in that the fish is ready to swallow the gizmo before the hook is set. Completely free line is best for worm fishing and it's hard to beat spinning tackle for this.

The lipless, minnow-like plug of various weights (Mirrorlure is a good example) is generally worked fast with lots of tip action but in the surface models it can be murderous on bass with only gentle movements and, for bass, 90 per cent of all the surface baits are worked too fast. The same goes for pan-fish. However, some of my best bass fishing has come when yanking a surface Mirrorlure from wave to wave in a high wind.

Stick-type plugs that sit nose up at rest and dip when twitched are at their best when moved very

gently and the same goes for surface spinner plugs that lie flat.

Most versatile of the plugs are those that float at rest and can be blooped, blipped and splattered with rod action and then submerge and wiggle on the way in. Best known of the old timers are the darter and Bass Oreno types. The secret weapon is that you can test several kinds of retrieve on the same cast. You pop the plug a little on top, then start it coming slowly and steadily; then bring it in fast with or without whip.

If you catch your first couple of fish while the plug's on top you'll generally figure that's the way they want it and might decide to change to a straight surface lure. On the other hand, if all of the action comes after the bait's submerged and coming fast you may have a specialized lure in the box that you'd rather use. The Rapala and its relatives such as the popular Rebel are good combination lures—most of them used on spinning tackle because they're light for their size.

There are some general rules: Generally, light tackle with a minimum of snaps, swivels and sinkers gives the best lure action.

Surface baits that are to be popped loudly require fairly stiff rods.

Fishermen who don't want to bother with a study of lure action are better off with baits having the action built in.

When in doubt, the slower retrieve is generally best—not always.

The lighter the tackle, the sharper the hooks should be.

Always try to learn if success is a result of a certain bait or simply a matter of rod action.

Even a 5-foot shelf of lures won't catch fish if you don't help them. ●

Firearm Supplies

HUNTING



Old and inoperable firearms are merely conversation pieces—most of their potentialities lie dormant—they could be “historical-type” antiques

By EDMUND McLAURIN

HERE'S SOMETHING good for a laugh! The natural gas pipeline that runs into Florida traverses some very good and highly popular deer hunting territory, including the Ocala National Forest, where sections along the cleared right-of-way are apt to look much alike.

It is customary to scout likely deer hunting areas along the pipeline prior to opening day of hunting seasons, and mark entry places into the woods so that exact spots can be located for early morning hours.

Few hunters ever think to carry suitable markers with them, and usually wind up by sticking a tin can or bottle on a roadside bush to mark entry spots they want to find quickly.

But this past season some quick-thinking, enterprising woman hunter chose to mark her pre-selected hunting spot beyond all doubt. The day before opening day the sun set on a pair of underpants hanging from a bush. At noon the next day they were gone. Evidently, the lady easily found her chosen hunting spot. Here's hoping she also got her deer.

CORRECTLY FITTING, comfortable footgear can rightly be classified among the most important of field used equipment, yet once hunting season has ended hunting boots and shoes are usually dismissed from mind, even neglected.

Chances are nine to one that your hunting boots or shoes have not received any attention at all since day of last use afield!

Quite likely, the leather is stiff from an experienced wetting, or boot soles, seams and eyelets caked with dried mud or filled with sand.

After each season's use, hunting footgear should be given cleaning and refurbishing in preparation for storage and use next season.

Remove laces and brush tongue, lacing eyelets and seams with a stiff bristle brush. An old toothbrush will do; it may require a few additional brushing strokes, because of its small size, but it will do a good job. A toothbrush is also ideal for applying leather conditioning agents.

Next, wipe all surfaces with a clean, dry cloth, followed by two applications of saddle soap applied in accordance with directions on the container, or final treat the cleaned leather with neatsfoot oil.

Neatsfoot oil or a good boot grease (like anhy-

drous lanolin) will restore suppleness and natural oils to leather boots and shoes that have been wet and have hard-dried. It is not a matter of how much leather preservative you apply, but how uniformly you do it and how much the leather absorbs the product. Too much applied oil or grease tends to break down leather by opening instead of filling its pores, making the leather even more water absorbent than it would be normally. Also, grease and oil are harmful to rubber; if your footgear is a combination of leather and rubber, keep the rubber sections clean and free of oil.

It takes a little time and effort to overhaul now idle hunting boots and shoes, but it is definitely a worthwhile chore. The future comfort or discomfort of your feet can well mean the difference between success or failure of your next hunting season.

ANY MONTH on the calendar is sure to be marked by a visit from at least two shooters asking that I “fix” an old gun. They invariably add that local commercial gunsmiths do not have a needed part. These contacts put me on the spot.

As I have stated before, I am not in the gunsmithing trade, and I know for fact that often needed component parts are no longer made or furnished to gunsmiths by the original makers, even if they are still in business.

I suggest to the shooter that he try to find original, factory-made duplicate parts from one of the firms that specialize in accumulating and selling second-hand gun parts, explaining his local gunsmith can then install the obtained parts or he can do the job himself if he possesses the know-how.

I am also aware that many of the competent gunsmiths to whom I refer shooters are reluctant to accept some gun repair jobs, for reason of difficulty of obtaining replacement parts, or because of the costly handwork involved in making and fitting custom parts. A gunsmith has to carefully figure his time and labor, to make even a seemingly minor part, and some of the components of old shotguns and drillings, particularly, have to be patiently handmade. Usually a budget-minded shooter is reluctant to pay the price that the gunsmith must charge.

In time, every gunsmith accumulates a box or
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drawer of odd gun parts, but it is economically impractical for the average gunsmith to regularly stock a large supply of replacement parts for a long list of obsolete model guns. Simply, a stocked part might never be sought by a customer.

Usually, a gunsmith tries to obtain a needed part from some trade source, or else he custom tailors it and charges accordingly.

Keep in mind that if a local gunsmith has to write around for a needed part, he must figure that, too, in his overhead. Few gunsmiths like to handle heavy correspondence. For minor repair work, it always helps (and reduces job cost) if the gunsmith already has or is furnished replacement parts.

There are a number of sources of supply for gun replacement parts and specialized gunsmithing services. For helpful guidance to both gun owner and resident gunsmith, I am giving some specific names and addresses. I suggest this information be clipped and saved. (Sometimes it is hard to find a particular name and address when needed. Also, you won't find such a comprehensive list anywhere else, to my knowledge.)

Gun Parts Old & New, 116 North 7th Street, Rogers, Arkansas 72756, has about fifty million miscellaneous gun parts in stock. Other general sources of supply include Bill Spencer's Gun Parts, 1324 Hammond Avenue, Superior, Wisconsin 54880; Numerich Arms Corp., 203 W. Broadway, W. Hurley, New York 12491, and Sarco, Inc., 192 Central Avenue, Stirling, New Jersey 07980. Numerich Arms, particularly, can usually supply a needed part for just about any model firearm you might name, given a complete description and a go-ahead-and-find-it order.

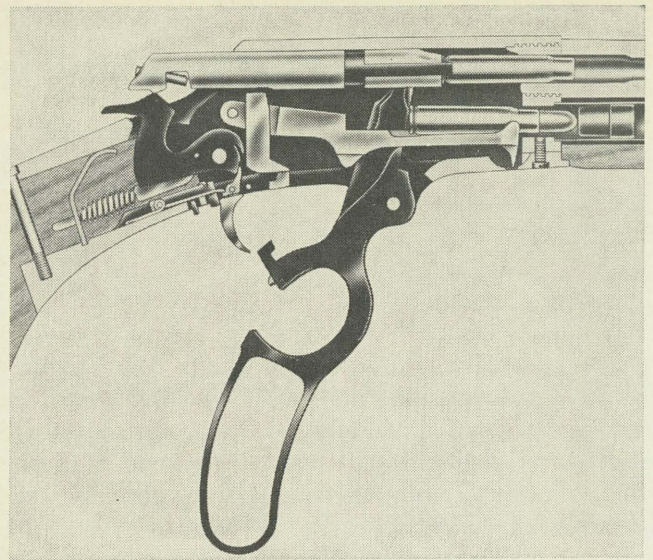
Parts for Winchester shotgun models 12 and 97; Stevens and Savage model 720; Remington model 31 and early model Ithaca 37's are fairly common. Eastern Arms Corp., Pasadena, California 91105, is one source.

Original parts to fit Winchester models 73, 76, 86, 92, early 94, 95, 96 and other obsolete Winchesters may be had from Robert Thompson, 844 - 14th Avenue, South Clinton, Iowa 52732.

Damascus barrels and damaged barrels on obsolete shotgun models can be rebarreled with modern steel through the sleeve method of rebarrelling. W. K. Tool and Gun Company, 5700 1st Avenue, South, Minneapolis, Minnesota 55419, does such restoration work.

R. Baumann, Glenbeulah, Wisconsin 53023, overhauls and makes needed parts for obsolete firearms.

Savage Arms Corp., Westfield, Massachusetts 01085, still has limited stocks of certain parts for making repairs to old Fox shotguns. Mostly, the parts are of lesser component category. No barrels, frames or receivers are available. Similarly, ejector grade Fox shotguns are no longer repaired by Savage.



Skeleton view of the mechanism of a Marlin Model 336 lever-action big game rifle. Whatever the make and model of your firearm, or its age, ready made or custom parts can be had for it. But, for some long obsolete models, you might have to shop around among various specialized sources of supply.

Larry Del Grego & Sons, 85 North Fifth Avenue, Ilion, New York 13357, specializes in rebuilding old Parker shotguns, which Remington no longer services.

The old L. C. Smith shotguns were made by Hunter Arms Company. When Marlin bought out the tangible assets of Hunter, the New Haven gun-makers acquired a modest stock of small parts—main springs, firing pins, top lever springs, etc. They may still have some. Owners of L.C. Smith guns should write the Marlin Company for information and prices of available parts before shipping any guns for repair.

For those owners of old L.C. Smith, Parker and quality Fox shotguns who place sentimental value above restoration cost, I can confidently recommend gunsmith Frank Pachmayr, Pachmayr Gun Works, 1220 So. Grand Avenue, Los Angeles, California 90015. His finished work will cause you to catch your breath in admiration.

Richland Arms Company, 323 West Adrian, Blissfield, Michigan 49228, can furnish repair parts for most modern Italian, Spanish, Austrian and German-made double barrel and over-and-under shotguns, including a variety of hard-to-find side-lock springs, coil springs, ejector springs, firing pins, ejectors and extractors.

Williams Gun Sight Company, Davison, Michigan 48423, stocks clip type cartridge loading magazines to fit all currently popular rifle models as well as for some foreign rifles. So does Stoeger Arms Corp., 55 Ruta Court, South Hackensack, New Jersey 07606.

Triple K Mfg. Company, P. O. Box 20312, San Diego, California 92120, and International Arms, 25 North Central, Phoenix, Arizona 85004, both sell

pistol magazines to fit imported and domestic auto-loading handguns.

Military rifle cartridge clips are sold by National Distributors, RFD 3, Box 80, Dover, Delaware, 19901, and by Flaig's, Millvale, Pennsylvania 15209, the latter firm also being a source of supply for miscellaneous military weapon parts.

Reese Surplus, Inc., Colona, Illinois 61241, has new repair parts for K and M&P model Smith & Wesson revolvers.

Broken springs in guns represent a frequently called for repair. In many cases, springs to fit some of the older model guns must be custom made. W. C. Wolff Company, P.O. Box 232, Ardmore, Pennsylvania 19003, either has or can make a spring for any rifle, handgun or shotgun, however obsolete the firearm model.

For black or bright chroming of chambers and barrels, and for top quality ventilated rib work, I can recommend two specific sources—Marker Machine Company, Box 426, Charleston, Illinois 61920 for hard chromed gun bores and chambers, and Simmons Gun Specialties, 700 Rogers Road, Olathe, Kansas 66061, for precisely fitted ventilated shotgun ribs. Both have a national reputation for quality work.

Parts for Kentucky flintlocks and early model percussion firearms are available from H. M. Schoeller, 569 S. Braddock Avenue, Pittsburgh, Pennsylvania 15221; from Glenn's Antique Arms Supplies, P.O. Box 40141, Indianapolis, Indiana 46240, and Dixie Gun Works, Union City, Pennsylvania 16438.

Shelley Braverman, Athens, New York 12015, deals in obsolete model gun parts, and the firm of Francis Bannerman & Sons, Box 26, Blue Point, New York 11715, has parts for old-timers like early British flintlocks, Spencers and Sharps rifles.

If you are seeking a particular component part to put a firearm back into service, don't make the mistake of concluding you can dash off a single (and perhaps vague) letter about a needed part and expect to get that replacement pronto. You must take care to give complete description of the firearm for which the part is needed, including model and serial number, as well as a description or drawing of the needed part and exactly where in the firearm it will be installed. Sources of supply cannot profitably enter into costly correspondence concerning a relatively inexpensive replacement part.

If you are serious about obtaining replacements, be specific in technical information and definitely enclose a self-addressed, stamped envelope for a reply. In that way, you will get prompt service—and eventually the gun part you need.

Simply because one contacted source does not have a needed part does not mean that others cannot supply it. Write around. It may take time, but you will surely get results. ●

Strained Resources

By ERNEST SWIFT

National Wildlife Federation

Conclusion

ALTHOUGH THE WORD "progress" has become a sanctified national slogan comparable to "E Pluribus Unum," it also has become a handy goal for personal, political, regional and national ambitions. These ambitions range from motives of integrity to some of sham and fraud. The word has no common denominator limiting its meaning or defining motives. It has become the most popular word in daily use to promote programs—some good, some bad—affecting our natural resources. Technological achievements have become synonymous with progress regardless of the fact that some of them have brought about serious consequences. This litany of progress has produced air and water pollution, soil erosion, forest fires, and the irresponsible use of pesticides, to name just a few.

Prior to its being nailed to the national masthead as a symbol of American ingenuity, the term manifest destiny was the rallying cry. Regardless of lofty pretenses, manifest destiny meant the use of any means, however revolting, of stealing land from the Indians and finally outwitting the Spanish in California and the Southwest, and the British in Oregon and Washington. This was all carried out with a sanctimonious and puritanical self-righteousness. Many of the signers of the Declaration of Independence and the Constitution were big scale land speculators. That is why they insisted that the Indian be obliterated. Andy Jackson said that it was against states' rights to allow Indians to live in any state.

When all this had been accomplished and the Indians had been placed on reservations, we vehemently denied, both then and now, that we ever had any imperial ambitions. Then, when we had staked out our claims on all the land we could defend, we changed the slogan from manifest destiny to progress.

Whereas there was little disunity in accomplishing the objectives of manifest destiny, progress began to engender internal strife. Progress meant dividing up the spoils of conquest, and as more people became involved, bitter personal and group conflicts followed. It became a tangled complex of regional, community and personal objectives, with no holds barred in obtaining those objectives. Outwitting government controls soon became an established and meritorious custom. Any restrictions whatsoever were a bane to progress.

During the middle of the nineteenth century stealing government timber in the Great Lakes States became a national scandal. Federal laws were passed to stop it, but then midwest congressmen

(Continued on next page)

(Continued from preceding page)

denounced Federal agents for enforcing such laws because they were stopping progress. Further west the cattle industry saw no taint of shame in killing off the Indians and the buffalo and claiming public lands for their own stock range. This was progress.

Then came the Homestead Act of 1862. With millions of acres of public land available, it looked like a bonanza to thousands of people with only meager opportunity or those who were adventurous and footloose. Many people saw a great righteousness in the Homestead Act. It meant national expansion and prosperity—the progress of democracy in its purist form.

But cattlemen rose up to preserve their way of life with the same tenacity as had the Indians. Many were finally pushed off the new homestead lands and grazing increased on the arid and semi-arid desert and in the timber and mountain meadows. Weeds and inferior forage replaced the native grasses that sustained livestock, the earth was cut to dust by the trampling of thousands of hoofs, and was caught up by the restless winds and whipped away to desolate the land.

Easterners and most Congressmen did not know the West. The merits of the Homestead Act became liabilities beyond the 100th meridian. The reason was simply a matter of not enough rain for the farming of grain or cultivated crops. John Wesley Powell had tried to point that out in the 1870's but no one paid any attention to him. Progress was becoming a tangled mess of human mistakes which outraged the ecological laws of nature. The cattlemen's progress destroyed much of the arid western range by overgrazing and the homesteader's progress came to finality with the dustbowls of the 1930's. Then the taxpayer had to help reclaim the original capital investment, which had been free to start with, to slow down greater destruction.

Now we are beginning to demand a new evolution in values. It is a rather ragged cycle from uninhibited and sometimes ruthless exploitation to a conservation conscience, but cycle it is. More leisure resulting from technological advances has not produced the cultural plateau anticipated. There are certain values and intangibles in life which a cold, push-button existence cannot satisfy. Computers do not bring forth perception and intellectual equilibrium.

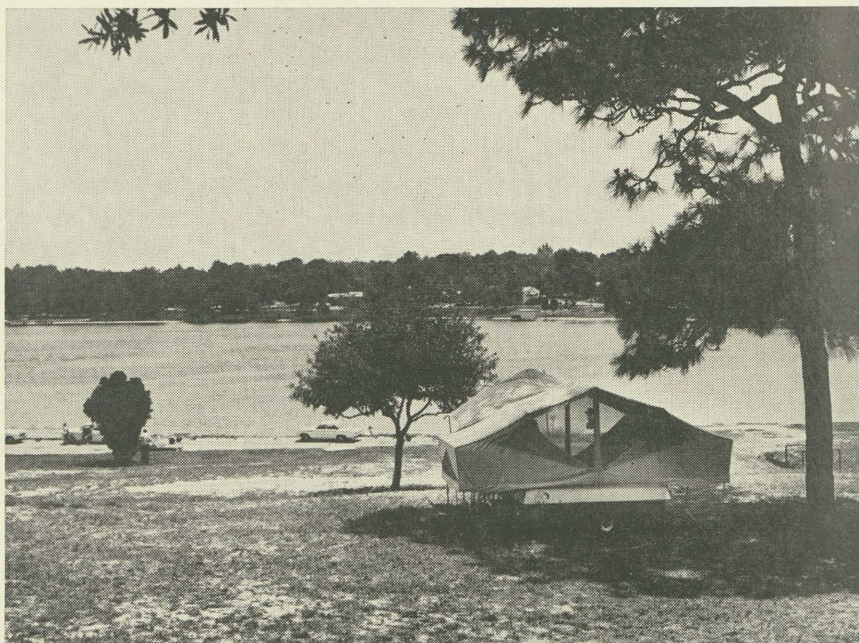
Progress is now taking on a new dimension which cannot be measured by two automobiles per family, wall to wall carpeting or Hi-Fi. The American people are beginning to feel cramped for space and want a high quality out-of-doors, even though they tend to abuse it. Something is being lost, they know not what. They are wondering what civilization has done to them.

What the Indian valued in space and freedom but was badly damaged by manifest destiny and progress is now being coveted as things most precious. Most people do not want any such primitive existence or the bucolic atmosphere of the late 19th century. They sense, however, that the present standards of progress so highly touted have become a whirling dervish of complexities. Their wishful dreams of simple pleasures are being destroyed.

Now we are attempting to re-establish some of the old, lost values and give definition to a different kind of progress. When we ask for something we must be sure that we want what we ask for. That is where we stand today. We have asked for many things and made many changes. Now we are not sure whether we want them all and are again trying to modify what only a few years ago was thought the epitome of the good life.

Lastly we might ask, just who is wise enough to define progress? ●

Americans are beginning to feel the pinch of industrialization plus progress in reduced outdoor opportunities. Pleasures of a simple nature connected with space and freedom—things the Indians treasured, of which they were deprived by force—again have become greatly coveted as being this nation's highest of treasured resources.



WILDLIFE OFFICERS made 2,575 arrests for hunting, fresh water fishing and boating law violations during the first half of fiscal year 1967-68, according to Maj. Brantley Goodson, Chief, Law Enforcement Division, Tallahassee.

Fishing license cases topped the field numerically with 579, followed by migratory waterfowl violations at 509; hunting licenses and management area permits—289; lifesaving devices (boating safety law)—184; night hunting (gun and light)—146; deer or turkey (out of season, illegal game in season)—109; boat registration—73; illegal fishing methods—71; alligator hunting or possession—41 and reckless operation of motorboats—40.

The balance included 443 miscellaneous hunting violations such as guns in management areas during closed season, hunting with unplugged guns, shooting before and after legal shooting hours, etc.

PERSONNEL OF THE Commission's law enforcement division became eligible to participate in the state's "high hazard" retirement plan for full-time criminal law enforcement officers as a result of action by the 1967 Florida Legislature. Under the plan an officer may retire at age 57; and disability benefits were increased over regular workmen's compensation and ordinary state retirement provisions, as were benefits paid to widows or certain surviving children in case of the line-of-duty death of a "high hazard" member.

ARREST REPORT

July 1, 1967 through December 31, 1967

Hunting Violations	Arrests
License & Management Area Permits	289
Night Hunting, Gun and Light	146
Illegal Deer or Turkey Hunting	109
Illegal Quail or Squirrel Hunting	43
Alligator Hunting or Possession of Hides ...	41
Migratory Bird or Waterfowl	509
Other Protected Animals (bear, wild hog, otter, etc.)	11
Miscellaneous (guns in management areas during closed season, unplugged guns, shooting before & after legal hours, etc. ...	443
	<u>1,591</u>
Fishing Violations	
Fishing License	579
Illegal Taking of Fresh Water Fish	71
Illegal Transportation of Fresh Water Fish .	15
Over Bag Limit	14
Fishing in Closed Areas	8
	<u>687</u>
Boating Violations	
Equipment (lifesaving devices)	184
Registration	73
Reckless Operation	40
	<u>297</u>
TOTAL ARRESTS	2,575



Photo By Jim Reed

Shown with eight deer seized during the Volusia County market hunting case in February are, from left, H. Chapin, H. Ashley, Brantley Goodson, Noah Long, E. Pierce and D. Swindell. These were does—some freshly killed. The raid resulted from undercover work by a Commission officer who purchased 2,000 pounds of deer, plus ducks and alligator meat. The deer were of both sexes and all ages—in highly competitive illegal game market.

Only Florida sheriffs were previously eligible for "high hazard" classification and benefits.

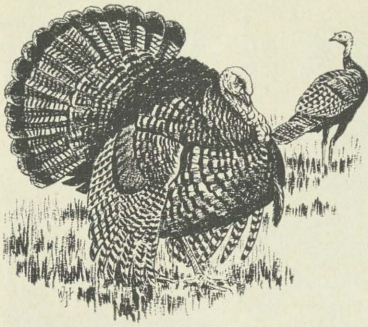
A tabulation of arrests by Florida wildlife officers for violations involving migratory birds—which are protected under both federal and state laws—revealed that in a seven month period, from July 1, 1967 through January 25, 1968, 706 arrests were made—an average of over 100 per month.

A breakdown showed violations involving dove at 444, more than doubled those involving duck—203 (of which 31 were wood duck cases). Other arrests involved: Coot—32; snipe—6; marsh hens—5; and other protected birds—16.

SINCE July 1961, wildlife officers have charged illegal alligator hunters with 597 violations, an average of slightly over 7½ cases per week (through January 1968). Of these, 331 resulted in convictions and 91 in acquittals, leaving 175 cases pending.

Fines accruing to the counties totaled \$26,125.00 and the Commission sold 3,685 confiscated 'gator hides during this period for \$47,586.00, which was deposited in the State Game Fund in accordance with Florida Law.

The total prison sentences in the 331 convictions amounted to 4 years, 7 months and 12 days, of which only 1 year and 6 months were suspended. Total time actually served was 3 years, 1 month and 12 days. Probation totaled 26½ years. ●



CONSERVATION SCENE

Fish and Wildlife Imports

NEARLY 28,000,000 live fish and more than 800,000 other animals were imported into the United States last year, the Interior Department's Bureau of Sport Fisheries and Wildlife has reported. This is the first time that virtually complete records have been obtained at ports of entry.

Imports included 27,759,332 fish, 30,157 shellfish, 405,134 reptiles, 203,189 birds, 137,697 amphibians and 74,304 mammals.

Federal regulations effective in 1966 require the reporting of incoming live fish and wildlife. The federal government seeks to prevent infectious diseases such as hoof and mouth disease and harmful species such as fruit bats and mongooses from entering the United States.

The regulations do not place limits on exotic or rare species, and 1967 imports included steppe eagles, pygmy hippopotamuses and giant tortoises.

Live fish importations were mostly tropical fish for home aquariums. Many of the shellfish were seed clams from Canada for replanting on New England tidal flats.

The reptiles included large numbers of lizards, snakes and turtles—species frequently favored as pets and often valuable in scientific experiments.

Frogs and toads, used primarily in educational research, comprised most of the amphibians. Of the mammals, 62,526 were primates. Over half the primates were rhesus monkeys from South-

east Asia, many of which are used in medical research.

The Port of New York is the principal port of entry, followed in importance by Miami, Los Angeles, and San Francisco. These four ports had over 90 percent of the importations.

Waterfowl Progress Decal

A NEW "proof mark" of conservation participation is putting in a colorful appearance all across the U.S. and Canada. Each sportsman-conservationist who contributes to Ducks Unlimited's vital 'duck factory' construction programs during 1968 is receiving an attractive blue, gold, and white decal identifying him as a member of the continent's pioneering non-governmental organization in the waterfowl conservation business.

The distinctive DU decals are in the form of an oval, four-and-a-quarter inches across; they are designed for display on auto windows or bumpers, gun cases, boats, hunting lodges or other unusual locations which duck hunters are capable of finding. One veteran of many waterfowl seasons commented that he'd put his decal up in his blind, "if it wasn't so dadblamed bright."

Well over 30,000 sportsmen of action supported DU's important

conservation programs during 1967, contributing a total of \$1,240,000 to be used in building, rehabilitating and preserving important wetlands in Canada's 'duck country' regions, which produce 4 out of 5 North American ducks. During '67, DU (Canada) completed 31 new projects, with total area of over 26,000 acres, bringing the 30-year Ducks Unlimited total to well over 1.5-million acres of waterfowl habitat.

Ducks Unlimited members are displaying the new decals with understandable pride. You can join them by sending *your* contribution to Ducks Unlimited, P. O. Box 66300-D, Chicago, Illinois 60666.

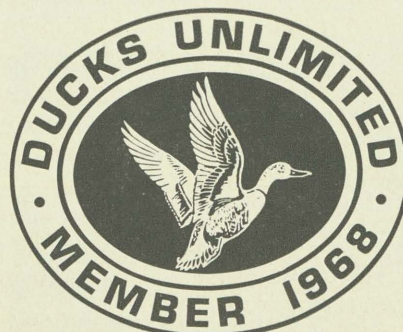
The Outdoor Corps

A NEW APPROACH to the very important business of enlightening an outdoor-minded public, particularly youngsters, on the pleasures of safe shooting and the fundamental conservation concepts so important to all outdoorsmen, has been made by the National Shooting Sports Foundation.

The approach is a shoulder patch, designed in the shape of a shotgun shell and boasting five colors, with the words "Outdoor Corps" written in blaze orange on a white background. It comes with an "Outdoor Corps" kit that also contains six informative pamphlets on shooting and conservation.

The patch is sure to score a hit with youngsters, and it will also appeal to older sportsmen. The idea is to increase distribution of shooting and conservation information. Sportsmen's groups are urged to get the "Outdoor Corps" movement going in their respective communities.

Kits containing six pamphlets



Sportsmen contributing to Ducks Unlimited now receive blue, gold and white identification decals.

and one patch cost 75 cents each. The same kit with two patches is one dollar. Youngsters will want to wear this handsome patch for it will signify their informal membership in a very important fraternity of hunters, campers, fishermen and conservationists.

Help the "Outdoor Corps" to get started. Write the NSSF at 1075 Post Road, Riverside, Connecticut 06878; order several kits and start the younger generation on the right road to a more meaningful appreciation of the outdoors.

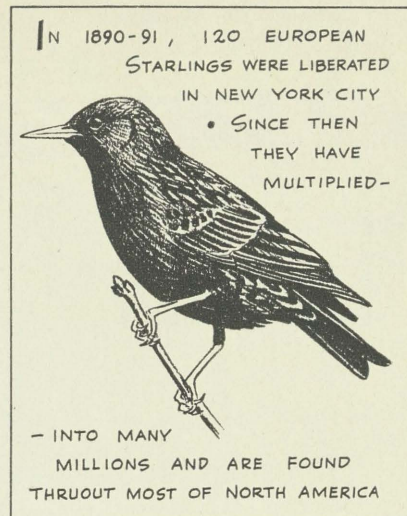
The Oldest Partnership

HISTORY DOESN'T record the date that the first wild canine forsook his forest freedom for the fireside of early man. "That's unfortunate," claims Dick Dietz of the Remington News Bureau, "because the date is one all men should know and commemorate.

"The man-dog partnership," continues Dietz, "is probably one of the oldest ever developed and certainly one of the most successful. Men have eulogized it for centuries. Perhaps one reason for its success is the fact that the dog, of all animals, is the only one that actually seems to prefer the company of man to others of his species. Another is surely the great adaptability of the canine breeds. Bred originally for hunting, protection, and various types of work, the dog has not only excelled at these roles but has added another, that of companion. As such, he's learned to thrive everywhere from the most remote ranch country to the concrete canyons of the modern city.

"Nor does age seem to affect the relationship. A puppy will take readily to a white-whiskered veteran while a grizzled old hound can learn to love a youngster whose years are less than his. The boy-with-dog pairing, of course, is the most appealing. A boy's dog asks only to be where his master is. To do so, he may spend much of his life waiting.

Nature Notes



Waiting for the boy to arise in the morning. Waiting for school to get out. Waiting for chores to be finished. Waiting for the magic words, 'O.K.—let's go.'

"When the dog becomes a hunting companion, however, the partnership is more complex, placing greater responsibilities and demands on both. It can also be infinitely more rewarding.

"A man can mourn his lost youth and lessened freedom. If he is fortunate enough to be an outdoorsman, it is also a legacy he can periodically renew. For a man of any age is always, or should be, part boy. Similarly, a boy who hunts with his elders is already part man. This is the basis of that special camaraderie among all who take to the woods and fields. And it is the special reward of those canines privy to the partnership. The size, shape and breed of dog may vary. But the patient, expectant eyes are forever the same as they look for the sign of the boots, the canvas jacket, the gun, and wait for the words 'O.K.—let's go.'"

Washington Double Talk

RECENT EVENTS in the nation's capitol concerning anti-crime and firearms legislation have prompted us to repeat a question we've asked before, according to John Marsman of Savage Arms.

"What are the true motives be-

hind the campaign of anti-gun critics to have all firearms registered?" At least one critic is already on record demanding confiscation of firearms.

Those members of Congress who have allied themselves with the anti-gun fraternity have repeatedly pointed to the nation's rising crime rate as the ostensible reasons for their actions. They blame the rise in crime on what they term "loose laws" regarding public ownership of firearms.

The solution, as these crime fighters see it, lies in control or curtailment of public ownership of firearms through registration. Their reasoning is based on the fallacy that persons with criminal intentions would be deterred because they would first have to register a gun before using it unlawfully. Some go even further and advocate total confiscation of all guns.

On the other hand, law enforcement officials across the country have been in agreement with one another in pointing to other causes responsible for the dilemma. Crime is not a problem caused by guns, they contend, but by society's maladjusted members. The criminal is the real problem, not the gun.

There are other causes, according to these experts, for the rising crime rate. Courts have been too lenient with criminals. Law enforcement officers have been hampered in their duties by legal interpretations which seem to benefit the lawbreaker. Police officers are underpaid, modern crime-fighting equipment is lacking, and police departments are grossly understaffed.

If our congressional leaders who oppose firearms legislation are sincere in their desire to keep guns out of the hands of would-be criminals, why was the Hruska bill bottled up in committee and allowed to die? This bill was looked upon as reasonable and ef-

(Continued on next page)



Present at the January meeting of the Game and Fresh Water Fish Commission's Area Supervisors Council in Orlando were, seated, from left, Lieutenants E. G. Pierce, M. H. McCoy, M. H. Foxworthy, W. T. Shirley, D. Thompson, Jr., F. E. Johnson and W. E. Ward. Second row, from left, Lt. W. H. Larkins, Maj. Brantley Goodson, Maj. R. M. Brantly, Capt. D. E. Swindell, Lt. C. E. Hall and Lt. R. H. Godwin. In back row, from left, Lieutenants R. N. Hill, O. G. Kelley, R. H. Hamilton, E. H. Lott, D. H. Tindale, Maj. J. Bickerstaff, Lts. D. Starling, E. Lawrence and R. J. Johns.

(Continued from preceding page)
fective firearms legislation and supported by organized shooters throughout the country.

The Hruska proposal, through amendment of the Federal Firearms Act, would have required the interstate purchaser of a handgun to fill out an affidavit for filing with the local law enforcement agency. A waiting period would have been required on the part of the seller, during which time the purchaser could be cleared by local police.

In 1967, two very important pieces of legislation aimed at combating the nation's crime problem were not acted upon. One would have provided the necessary funds for bolstering law enforcement agencies. The other would have tightened an existing law governing the purchase of mail order handguns. Yet, neither of these laws was passed.

Let's hope that 1968 brings reasonable anti-crime and firearms legislation.

Area Supervisors Council

At its January meeting in Orlando the Game and Fresh Water Fish Commission Area Supervi-

sors' Council heard ten papers on wildlife law enforcement training and leadership topics, and an address by Commission Director O. E. Frye, Jr.

Lt. M. H. Foxworthy (Everglades Region) discussed wildlife officer obligations to supervisors; Lt. R. N. Hill (Northwest) spoke on the supervisor's obligations to his officers; in-service training was discussed jointly by Lt. E. W. Lawrence and Lt. J. B. Jordan (Southern); and Lt. W. T. Shirley

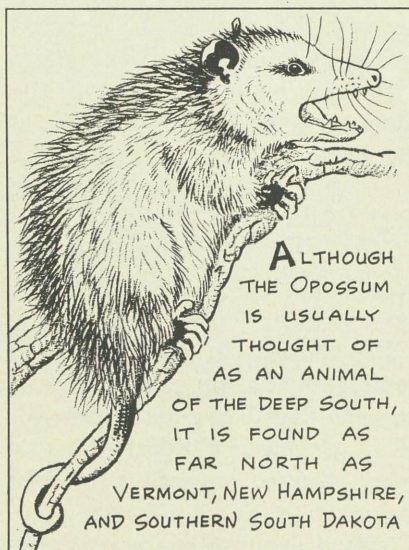
(Everglades) discussed hunting and fishing rules and regulations.

Other papers on the two-day program were presented by Lt. R. H. Hamilton (Central), Lt. D. L. Starling (Northeast), Lt. D. H. Tindale (Central), also current council chairman, Lt. C. E. Hall (Central) and Lt. W. H. Larkins (Northwest), who reviewed "Thirty Years of Wildlife Law Enforcement in Florida." (Larkins, who was employed in 1937, is the Commission's "oldest" employee.)

Commission staff members participating on the program were Joel L. McKinnon, Administrative Assistant; Maj. Brantley Goodson, Chief, Law Enforcement Division; Maj. Rhett McMillian, Chief of Communications; Maj. J. M. Bickerstaff, Central Regional Manager; Maj. R. M. Brantly, Northeast Regional Manager and Capt. David Swindell, Personnel Officer.

The Area Supervisors' Council is a Commission advisory group composed of field supervisors in the Law Enforcement Division. It meets semi-annually. Lt. Leon Barrie (Northeast) is current council secretary.

Nature Notes



For that BIG ONE



that didn't get away

ELIGIBILITY REQUIREMENTS SPECIES

LARGEMOUTH BASS

.....8 pounds or larger

CHAIN PICKEREL

.....4 pounds or larger

BLUEGILL (BREAM)

.....1 1/2 pounds or larger

SHELLCRACKER

.....2 pounds or larger

BLACK CRAPPIE

.....2 pounds or larger

RED BREAST

.....1 pound or larger

All fish must be taken from the fresh waters of the state of Florida, as defined by the Game and Fresh Water Fish Commission. Fish must be caught on conventional fishing tackle, with artificial or live bait, in the presence of at least one witness.

The catch must be weighed and recorded at a fishing camp or tackle store within the state by the owner, manager, or an authorized agent of the respective establishment.

FLORIDA WILDLIFE'S FISHING CITATION

is available without charge, to any and all subscribers to Florida Wildlife Magazine, and their immediate families, who catch any of the fresh-water game fish of the prescribed species and size requirements. Citation, showing recorded date of the catch, will be mailed to the applicant upon receipt of the following application form that has been properly filled out and signed.

Only fishing citation applications received within
90 days from date of catch will be honored.

APPLICATION FOR FLORIDA WILDLIFE FISHING CITATION

The Editor, FLORIDA WILDLIFE _____ Date _____
Game & Fresh Water Fish Commission, Tallahassee, Fla.

Please send me the Florida Wildlife Fishing Citation with the inscribed data listed below:

Name (please print) _____

Address _____

City _____ State _____ Zip No. _____

Species _____ Weight _____ Length _____

Type of Tackle _____

Bait or Lure Used _____

Where Caught _____ in _____ County

Date Caught _____ Catch Witnessed By _____

Registered, Weighed By _____ At _____

Signature of Applicant _____

CUT OUT AND SAVE THIS APPLICATION BLANK



Young Red-tailed Hawk

Photo By Leonard Lee Rue III

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